ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

To COMBAT CORROSION in the B&O's new ore pier and bridges— Handrailings and deckplates are

BYERS WROUGHT IRON

Because of the extensive network of hand railings which serve the many walkways and stairways on the Baltimore and Ohio Railroad's new Curtis Bay Ore Pier, the use of a durable material for the service was vital to the control of excessive maintenance and repair. B&O engineers solved the problem in a time-proven way by specifying genuine wrought iron. Over 25 tons of Byers Wrought Iron was fabricated into railings and installed on the ore pier, the unloading machines and conveyor belt. Several of the railings are shown in the main illustration above. Genuine wrought iron was also used to safeguard the hand railings and deck plates on three recently completed ballast deck bridges which carry the B & O into the pier area. Over 66 tons of Byers Wrought Iron was fabricated into ½-inch plates and used to surface the bridges. The insert photo shows the completed structures.

Genuine wrought iron has demonstrated its superior service qualities in hand railing and deck plate applications many times over. Because it is inherently resistant to corrosion it does not depend on frequent and periodic painting for protection when used for railings. If the scheduled painting must be deferred, the life of genuine wrought iron railings is not threatened. The same service qualities overcome excessive maintenance in deck plate applications where acid drippings from coal cars and run-off water present corrosive threats.

You'll find some helpful information in our bulletin, WROUGHT IRON IN BRIDGE CONSTRUCTION. Write for a copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N. Y.

WHY GENUINE WROUGHT IRON LASTS

This notch-fracture test specimen illustrates the unique fibrous structure of genuine wrought iron—which is responsible for the high corrosion resistance of the material. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, halt and disperse corrosive attack, and discourage pitting and penetration. They also anchor the initial protective scale, which shields the underlying metal.

BYERS

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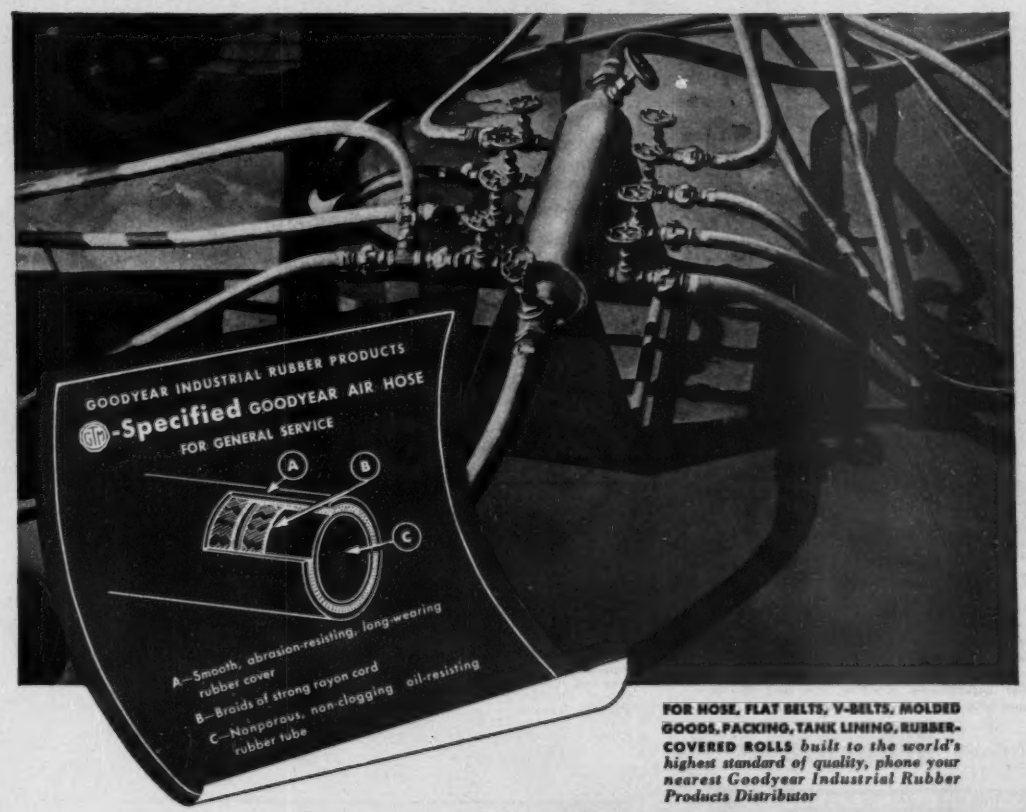

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ENGINEERING NEWS-RECORD

Member ABC

Volume 147 SEPTEMBER 27, 1951 No. 13

WALDO G. BOWMAN
Editor

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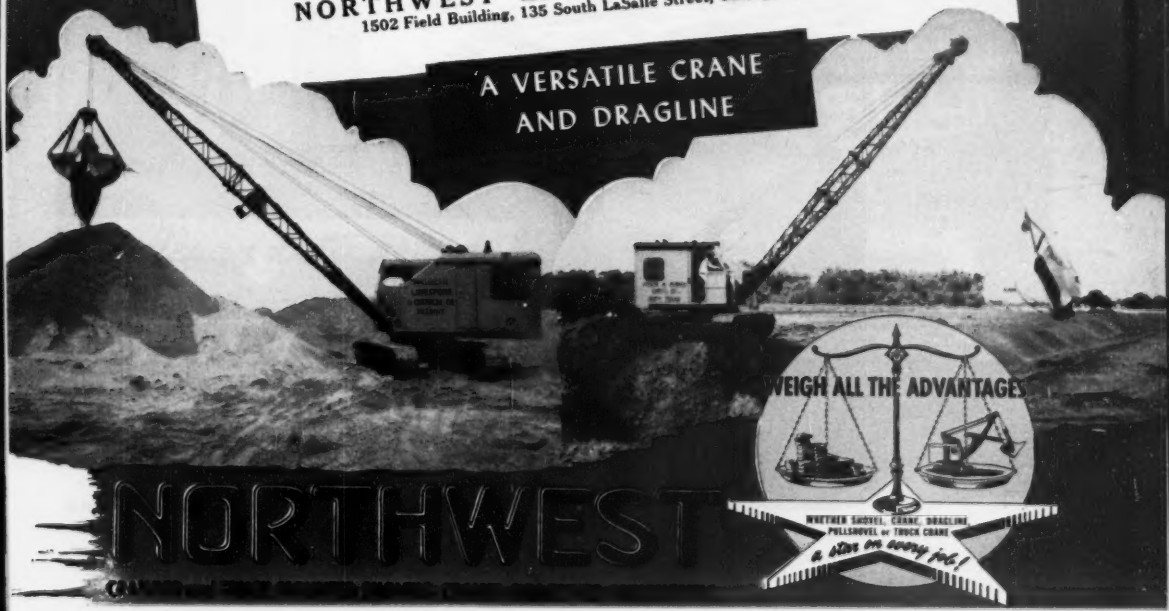

Specify Protection in Mobilization Construction

Industrial construction for mobilization will give longer, more dependable service if you specify the *protection* of Monsanto Penta for the lumber you employ.

Monsanto Penta (pentachlorophenol) protects against termites and other wood-boring insects and controls decay caused by fungi. Treated with properly formulated Monsanto Penta, wood can be painted or varnished.

Write for details on *how to specify* penta treatment for lumber . . . for names of companies that can supply material treated with Monsanto Penta . . . for firms able to custom-treat your lumber . . . for brands of formulations with which you can do your own treating effectively. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second Street, St. Louis 4, Missouri.

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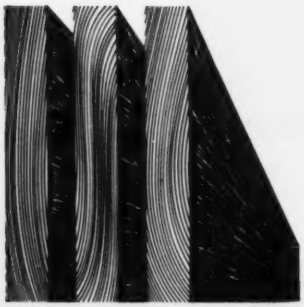
Typical uses of penta-treated wood

Wherever wood is used, penta treatment will give it longer life. The following table gives the amount in pounds of 5% penta solution in oil that a cubic foot of wood should retain for maximum protection.

	Humidity average to low	Humidity average high
Sills and plates	6	8
Joists and girders	6	8
Screeds and subflooring	6	8
Factory flooring	6	8
Roof plank	6	8
Platforms and decking	6	8
Posts and fences	6	8
Cooling towers	..	8-10
Sign material	6	8
Millwork	6	8
Highway guardrails	6	8
Railway cars	6	8
Bridge timbers	8	10-12
Utility poles	8	8-10
Crossarms	6	8

Note: Higher treatments are recommended where wood is to serve under severe conditions, such as in the tropics. Recommendations will be furnished on request.



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5 Does it have interlocking rods?

6 Does it have an extra heavy crankshaft?

7 Does it have dual overhead camshafts?

8 Are the camshafts driven from the flywheel end?

9 Does it have an integral hydraulic servo-type governor?

10 Is the cylinder block symmetrical?

ASK these questions of any diesel engine salesman and you'll find that only the Murphy Diesel Salesman can answer "Yes" to all of them. From an operating standpoint ten "Yeses" mean you'll get more power, greater economy, greater dependability and longer engine life . . . just what you get with Murphy Diesels. Full information is given in the booklet *"10 Questions to Ask a Diesel Engine Salesman."* Ask your Murphy Diesel Dealer for a copy or write direct.

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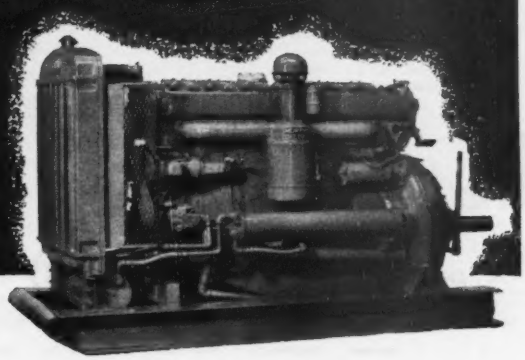

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Kaylo Heat Insulation is easy to handle and apply—in all sizes, shapes and thicknesses—because of its high structural strength and light weight. This remarkable combination of high strength and light weight makes possible speedier application. It provides for units of greater size which permit larger surfaces to be covered faster. With these combined features, Kaylo Heat Insulation gives exceptional ease of handling—offers substantial savings in application costs.

Kaylo Heat Insulation is a hydrous calcium silicate (not glass) with a wide effective temperature range—up to 1200°F. It is inorganic and insoluble in water, incombustible and retains its dimensional stability in long service under severe conditions.

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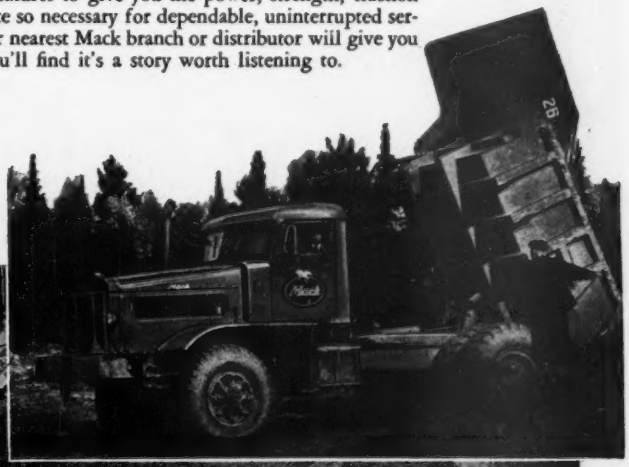
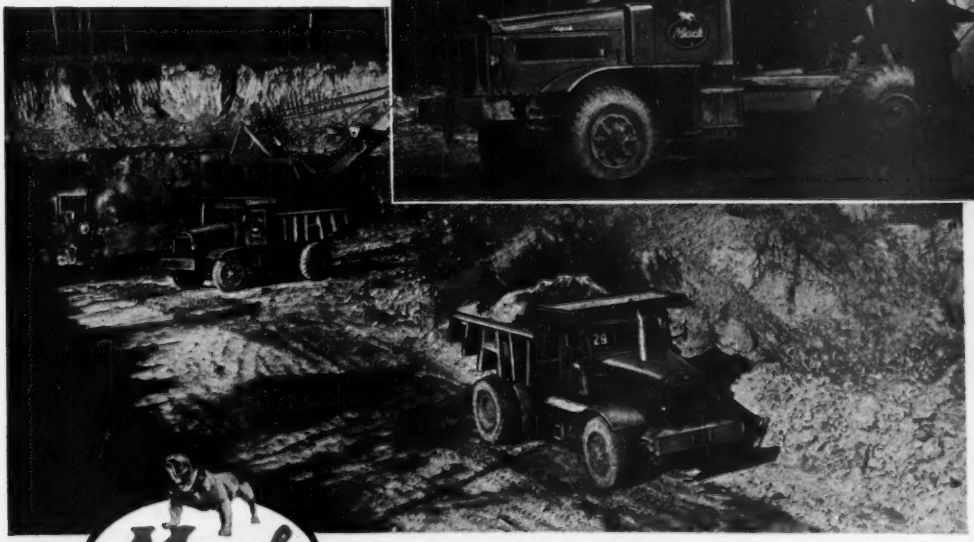
One big reason why Mack trucks lick the toughest terrain is the exclusive Mack Power Divider. Where unequal tractive requirements are encountered, the Power Divider differential distributes torque to favor the driving wheel having the most traction, thus eliminating power dissipation in useless wheel slippage.

Mack's exclusive Power Divider combines with numerous other outstanding Mack features to give you the power, strength, traction and easy maintenance so necessary for dependable, uninterrupted service on the job. Your nearest Mack branch or distributor will give you complete details. You'll find it's a story worth listening to.



Whether in stripping or excavating, Model LR SUPER MACK trucks keep the loads moving—fast.



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NEWS BRIEFS

• **Building design in the atomic age**—A meeting of building experts to study recent developments in atomic energy affecting the design of buildings will be held in Washington during the third week in October, Thomas K. Fitz Patrick chairman of the Nuclear Science committee of the American Institute of Architects has announced. The conference will be co-sponsored by the Atomic Energy Commission and conducted by the Building Research Advisory Board of the National Council. The meeting will be attended by architects, contractors, manufacturers and the business and trade press. Preliminary conference topics include discussion of the design of a tracer laboratory; design of laboratories handling radioactive materials; shielding for radioactivity; building materials and surface finishes for laboratories; and disposal of liquid and solid radioactive wastes from research laboratories.

• **Bonds for construction**—Gov. Paul A. Dever of Massachusetts, has sent a special message to the legislature asking for a $37,500,000 bond issue to finance a construction program, mostly to provide for the modernization of mental institutions and teachers colleges in the state. He urged the expenditure of more than $6,000,000 on the teachers' colleges, some of whose run-down buildings are called unsafe. The largest project would be a new $9,500,000 building at the Worcester State Hospital to replace the Summer Street Annex.

• **N. J. Turnpike service stations**—The Cities Service Oil Co. of New York has been awarded a contract to operate six service stations on the northern section of the 118-mile New Jersey Turnpike now nearing completion. Twelve oil companies submitted bids on the exclusive right to sell gas and oil products on the turnpike, but the Cities Service offer was the highest. The company will pay 7.019 cents per gallon on its motor fuel sales (including Diesel oil), plus 5 percent on the gross sale of other products.

• **Trouble in Wren Lane**—Primary state highway No. 5 in Western Washington state is known within Pierce County as "Wren Lane." Here's the story: Maude and Hubert Wren, sister and brother, own a farm not far from Tacoma. About 10 years ago the state

(Continued on page 13)

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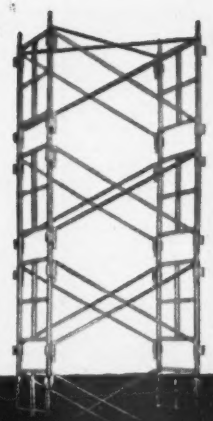
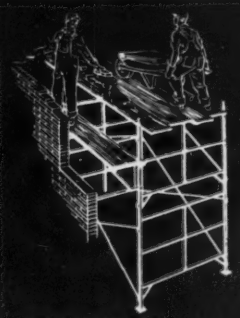
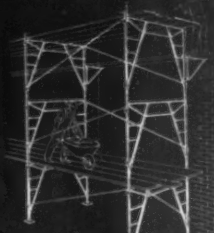




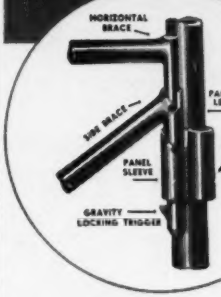
4-4½-5 ft. Mason Panels with intermediate plank-bearing areas.

Note how in these Ezebilt Mason applications, side brackets provide areas for exclusive use by mason—material storage always at convenient height—and wheelbarrow passage area easily available.



6½ ft. Mason Panels with through passageway at every lift.

No Bolts!
No Nuts!
No Loose Parts!



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- Swivel Action permits "racking down", scaffolding circular objects, exceptionally high flexibility.
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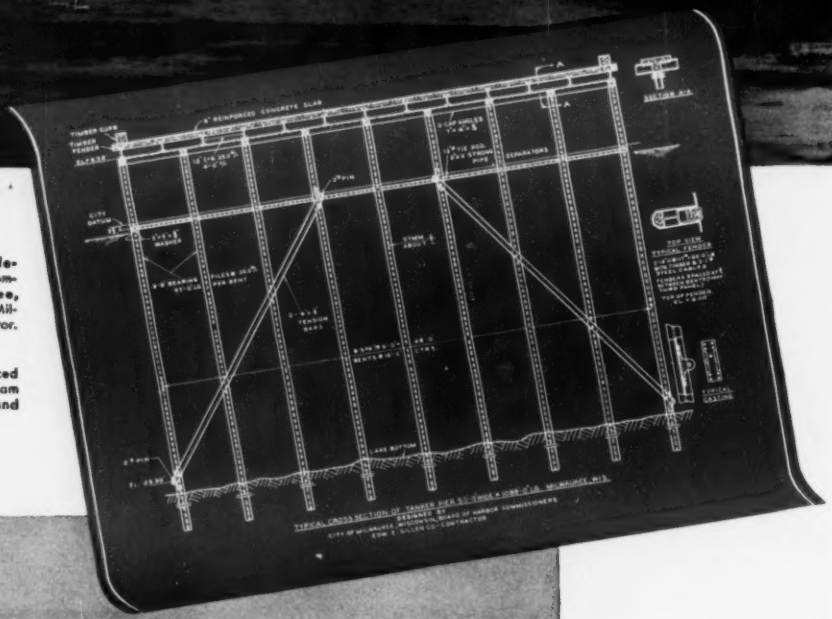
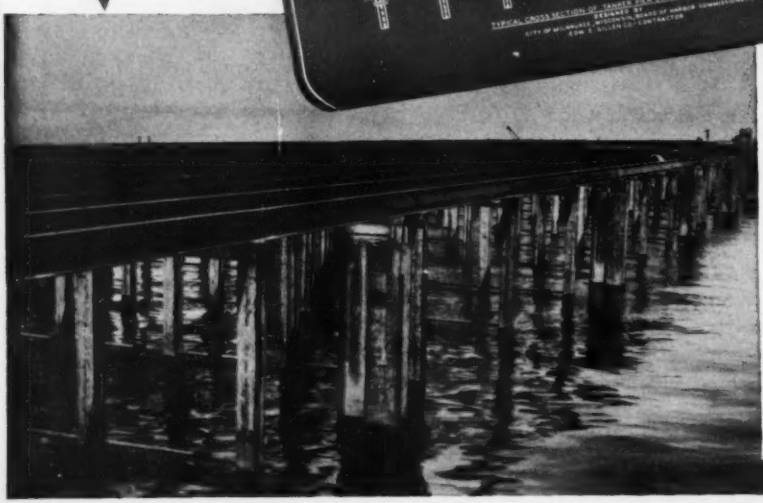


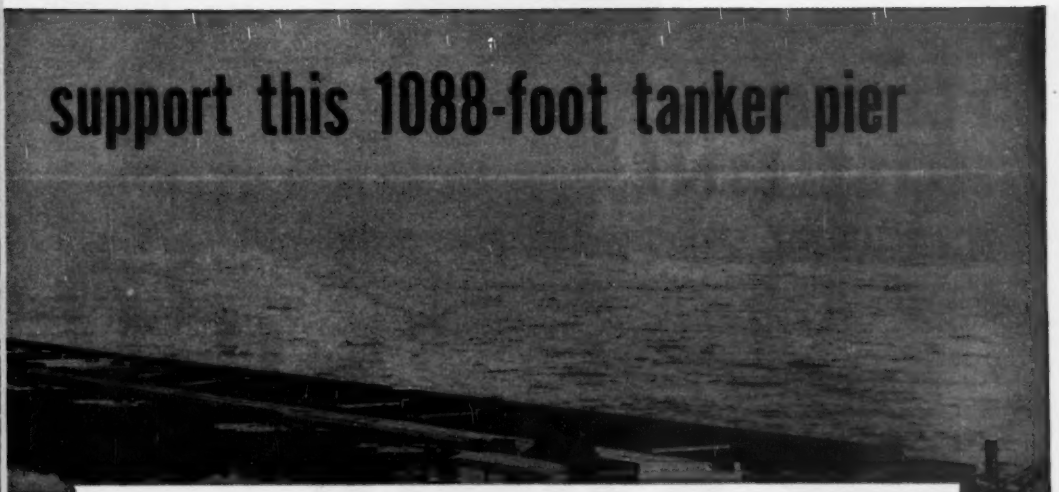
New all-steel tanker pier, designed by Board of Harbor Commissioners, City of Milwaukee, Wis. Edward E. Gillen Co., Milwaukee, steel structure contractor.

Pier before laying of reinforced concrete slab, showing H-Beam Bearing Piles, angle caps and I-Beam stringers.



USS

support this 1088-foot tanker pier



Milwaukee harbor structure eliminates storm flooding with open-type construction; makes use of tension members and unique fender system

● When Milwaukee's Board of Harbor Commissioners designed this new tanker pier, they were determined to eliminate the periodic flooding that northeast storms caused in the area surrounding an old closed-type pier. They accomplished this successfully with open-type construction utilizing U·S·S Steel H-Beam Bearing Piles. Under certain favorable conditions, this type of construction may prove economical.

The pier, 50 feet wide by 1088 feet long, consists of bents 16 feet on center. Each bent is constructed of nine 8-inch U·S·S Steel H-Beam Bearing Piles, capped by two 7 x 4 x ⅝-inch angles. On top of the angles are 13 rows of stringers—12-inch U·S·S Steel I-Beams spaced 4 feet on center. A 6-inch reinforced concrete slab rests on top of the stringers.

In place of batter piles, tension members were used, extending from the outside pile at lake bottom to the fourth column at water level. Careful alignment of bents was necessary and was accomplished by using pipe spacers and driving on outside columns until tension members were taut.

Each fender pile consists of two 14-inch U·S·S Steel H-Beam Bearing Piles 65 feet long welded together and faced with wood. Two 1-inch wire cables, three feet apart, are wrapped around each fender pile and extend to and around each successive pile.

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Strong, permanent, easily-driven U·S·S Steel H-Beam Bearing Piles have proved their ability to provide a secure means of supporting foundations in unstable materials of great depth.

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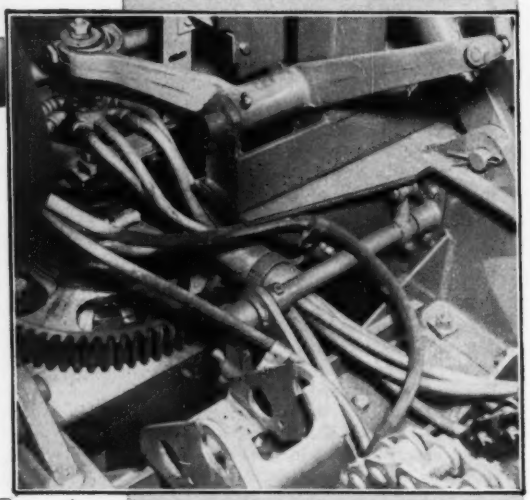
UNITED STATES STEEL

FLEXIBLE HOSE LINES

WITH DETACHABLE, REUSABLE FITTINGS

Always first
ON EARTHMOVING EQUIPMENT



Save time, save money and reduce inventory by putting the "Aeroquip Idea" to work for you. With Aeroquip you make your own flexible hose assemblies by cutting bulk hose to desired lengths and attaching Aeroquip Reusable Fittings. Assembly can be accomplished quickly and easily right on the job. No special tools are required. No training is needed. Aeroquip high quality Flexible Hose Lines improve performance and reduce maintenance. They eliminate leaks due to vibration and operate dependably at extremely high or low temperatures. They are widely used for hydraulic fluid, water, air, lubricating oils, gas and Diesel fuels and many other fluids.

Always first

B.D. Chuk nite the money saving idea—Joe

Here Aeroquip Flexible Hose Assemblies are used in the hydraulic system of a wheel-mounted shovel crane. Wire braid reinforced, these heavy-duty hose assemblies match the ruggedness of hardworking earthmoving equipment of all types.

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News briefs . . . .

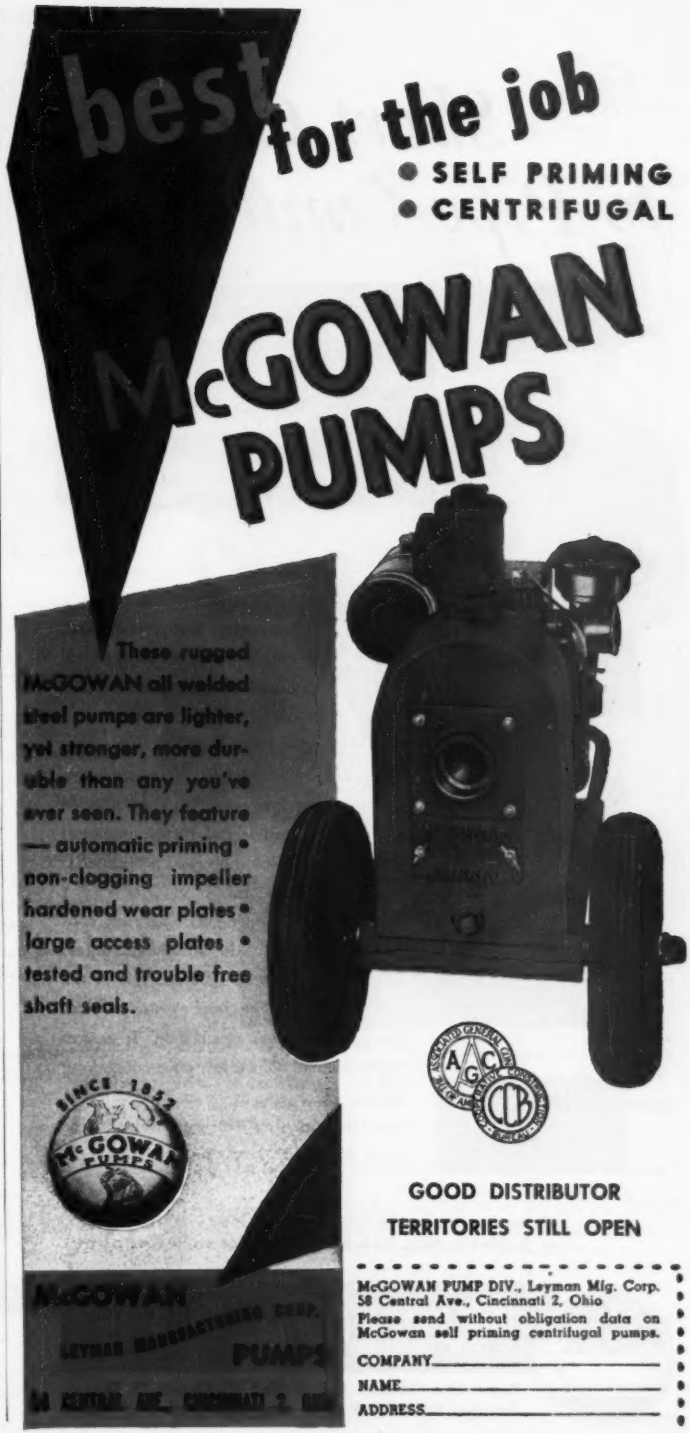
ran a highway through their property. The Wrens didn't like it, and the Wren tax bill was just as large as ever. The Wrens said, "If we pay taxes on the entire property, the highway must belong to us." So they put up "No Trespassing" signs and raised havoc with highway maintenance men, telephone linemen and sheriff's deputies. A fight occurred when Clarence Duncan of the state highway department attempted to haul away one of the Wrens' "No Trespassing" signs. Hubert Wren was brought before Justice of the Peace Martin L. Potter, and was found guilty of third-degree assault. He got a six-months suspended sentence. Maude promptly directed her defense attorney to file notice of appeal and proclaimed she had not yet begun to fight.

• **More light**—The "Wall of Light," a 20 ft 6½ in. by 123 ft. 10½ in. window to be built on the face of the Fleming Tower of the $650,000 Tidewell Bible Building, to be constructed at Baylor University, Waco, Tex., is said by some to be the largest window in the world. The window will cover the entire face of the building's tower and will reach 10 floors into the air. Bids are now being taken for construction of the building. Says Architect Guy A. Carlander, of Amarillo, Tex.: "The glass is in large units, each piece being approximately 48 in. square. The glass will be from ¾ of an inch thick to 1½ in. thick over high points of modeling."

• **Specialization pays**—Elmer W. Deroo was released from a Buffalo, N. Y., jail recently because, without him, work on a section of the N. Y. State Thruway had to be suspended. Deroo, a key man on concrete pouring for the Main Construction Corp., was sentenced to 30 days in the Erie County penitentiary for leaving the scene of an accident in nearby East Aurora. The firm hired an attorney to see what could be done. He placed the facts before County Judge Carlton A. Fisher who modified the man's term and ordered him released on probation.

• **Airlift for labor**—A Spokane, Wash., contractor has begun his own "airlift" on a daily shuttle between that city and a town 66 miles away, where he has a church construction contract. Paul E. Gemberling, who is a private pilot, conceived the operation as the best way to overcome a carpenter shortage in tiny Wilbur, Wash. He said the daily trip for four carpenters

(Continued on page 14)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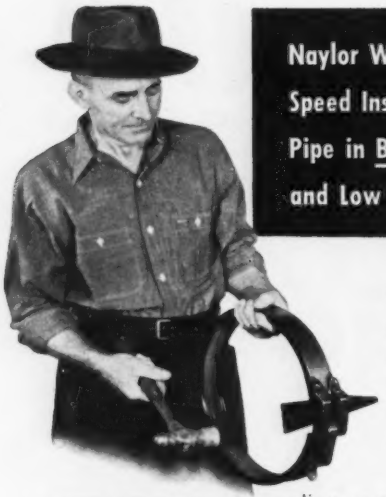
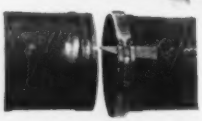
Short Cut to Pipe Connections



Naylor Wedge-Lock Couplings Speed Installation of Naylor Pipe in Both Heavy-Duty and Low Pressure Service

Whether it's a permanent, heavy-duty installation, or a temporary, low-pressure line, there's a Naylor Wedge-Lock Coupling that's ideal for connecting Naylor pipe.



These positive type couplings are available in two types—for heavy duty and for low pressure. They provide the quickest, easiest and most economical method of pipe assembly, and a hammer is the only tool required.

The Naylor Wedge-Lock one-piece construction offers definite advantages. Joints can be made up with only one side of the line in the open. The coupling also provides for expansion and contraction. It assures tight, leakfree joints, less power loss, long service life, high salvage and re-use value. Available in sizes for light-weight pipe from 8" to 30" in diameter.

Write for Bulletin No. 513 on Heavy-Duty type; or Bulletin No. 514 for Low-Pressure Coupling.

NAYLOR PIPE

Naylor Pipe Company, 1248 E. 92nd St., Chicago 19, Ill.
New York Office, 350 Madison Avenue, New York 17, N.Y.

News briefs . . .

consumes no more time than would be involved in a suburban construction job for most workers—33 minutes each way.

• **Engineers' armband**—In the future, all Corps of Engineers personnel engaged in flood fighting and other emergency work will be easily identified by the use of a distinguishing arm band, it has been announced by the Office of the Chief of Engineers, Department of the Army. Previously, no standard mark of identification has been used by the Corps of Engineers in emergency work, such as the recent floods in the Midwest when nearly 1,000 Corps of Engineers personnel were assigned to flood emergency work in the Kansas City District alone. The adjustable arm band will be of bleached cotton duck, 4 in. wide and 17 in. long. The Engineer Castle insigne and lettering will be white on a red background.

• **Baltimore County beltway**—Preliminary plans for a 5-mile section of the county beltway between Falls Road and the Dulany Valley Road have been completed, according to John B. Funk, chief engineer of Baltimore County, Md. This section will link the rapidly expanding suburban communities north of the Baltimore city line.

• **Sidewalk superintendents mystified**—A construction man at Bethlehem, Pa., writes us: "The Pennsylvania Dutch sidewalk superintendents keep close tabs on our local construction jobs. Usually they are able to reconcile cause and effect. But a recent operation was too much for them. We had delivered a portable boiler, a steam pump, and a supply of coal at the site of a pool to be unwatered. Before the equipment was put into service, an alert foreman discovered a gully over the bank which enabled a siphon to be installed in place of the pump. The boiler remained unfired, the pump unconnected, no workman was kept in attendance. The onlookers put their hands on the cold boiler, they noted the idle pump, they saw the water pouring out continuously, day and night, and they were totally baffled. They sent a delegation to get the facts. It was explained that air pressure really made the siphon work. Departing, the still baffled spokesman scratched his head, and haltingly said, more to himself than to his fellow delegates, 'Lufte macht Wasser laufe,' from which we concluded that we understood him fully as well as he understood that atmospheric pressure made the water run."

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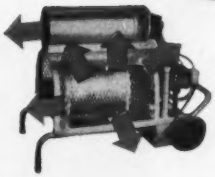
Mail coupon today for complete information about the Model RF and other Silent Glow Portable Heaters.



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This is what was published in the Detroit News

STRUCTURAL RIB BOLTS

(REG. U. S. PAT. OFF.)

The "One-Man Rivet"

SOMEBODY on the structural steel job for the $3½ million addition to Receiving Hospital was thoughtful enough to think of the 650 Receiving patients and others in Detroit Memorial Hospital across the street. The steel work has virtually been completed with a minimum of distress to the patients. This was accomplished by eliminating rivets and the nerve-wracking, machinegun bark that goes with riveting. Instead, the structural steel was bolted with 36,000 rib shank bolts, reducing the noise of the job.

City of Detroit—Receiving Hospital Addition Unit "D"
City of Detroit—Architects
Chief Engineer—Geo. B. Thompson
General Contractors—Krieghoff Company, General Builders
Steel Fabricators—Whitehead and Kales Company

APPROVED . . . Structural Rib Bolts equipped with Automatic Lock Nuts have been approved in place of field driven rivets, not only on Federal Projects but in state and foreign countries. They are the only ribbed bolts on the market with American Standard Threads and the Automatic Lock Nut—the lock nut that complies with Federal Specifications FFB-571A—used for plain bolting. The bolts themselves comply with Federal Specifications QQ-S-721A and are used in the construction of Defense Projects such as Ordnance Plants—Radio Towers—Hangars—Warehouses, etc.

CHECK THESE ADVANTAGES—(1) Made from Manganese Class A Steel—guaranteed more than 70,000 lbs. tensile . . . Tests show a ¾" dia. bolt to be stronger than a ¾" rivet; (2) The Automatic Lock Nut is a one piece unit that really locks with a turn of the wrench. And only a wrench can unlock it. Millions now in use on Standard Machine Bolts; (3) The ribs mush and fill the hole making a body-bound fit—permanent or temporary; (4) Made in every thickness of work or grip from ¾" to 6" inclusive—Black or Galvanized.

AUTOMATIC NUT COMPANY, INC.

LEBANON . . . PENNSYLVANIA

THE CONSTRUCTION WEEK

Contracts by type of work

	This Week	Cumulative 39 wks 1951	1950	% chge
Waterworks.	$3.1	$162.1	$173.7	−7
Sewerage ...	10.5	244.2	205.3	+19
Bridges	5.1	254.8	286.3	−11
Highways ..	23.7	916.3	977.7	−6
Earthwork, Waterways.	5.7	422.7	326.8	+29
Buildings:				
Public	37.4	1,717.3	1,243.9	+38
Housg., pub.	4.4	557.9	228.4	+244
Housg., priv.	26.0	1,459.9	2,646.7	−45
Commercial	7.9	498.2	748.9	−33
Industrial .	189.7	3,153.6	1,131.0	+179
Unclassified .	21.6	1,337.5	995.7	+34
Total	**$333.1**	**$10,724.5**	**$8,964.4**	**+20**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost.	Sept. '51	542.61	260.83	113.75
Bldg. Cost. .	Sept. '51	399.90	216.17	113.66
Volume	Aug. '51	452	184	131

CHANGE COMING—Structural steel allotments for industrial expansion, which got step-child treatment in the fourth quarter, will fare better in the first quarter of 1952. That seems certain from a reshuffling that is going on in Washington. DPA will unquestionably give the new steel-making facilities what they need. Electric power plants however will still be treated parsimoniously on the ground that steel framing for the building is not essential until copper to equip the plants can be promised.

POWER CONTROVERSY—The Rural Electrification Administration in Kentucky and the Kentucky Utilities Co. are angaged in a no-holds-barred fight over power expansion plans, which is headed for early showdown. Both organizations have filed suits in the Circuit Court opposing the others' expansion plans. The REA agency offered to withdraw its suit, if Kentucky Utilities would do likewise. Kentucky Utilities countered with an offer to install a generating unit in the plant it wants to expand at Tyrone, especially to serve REA needs. The REA agency, which wants to generate its own power, promptly announced last week that it will break ground for a new $30 million plant on the Kentucky River late in October, despite the pending legal action.

UNDAUNTED—With Missouri still struggling to recover from its flood disaster this year, its legislature is boldly considering a 10-year road program to cost an estimated $557.5 million. The program, proposed by a joint commission of the Senate and House, would be financed by an increased gas tax and higher bus and truck fees. It includes $297.5 million for major highways; $118 on a "farm-to-market" system; and $142 on city systems.

TURNPIKE ROW FLARES—The battle raging between portland cement and asphaltic concrete interests over surfacing of the $31-million Tulsa-Oklahoma City toll road flared anew last week. A request from Gov. Johnston Murray's office caused the Turnpike Authority to call for engineering estimates on long-range maintenance costs two weeks prior to the calling of bids slated early next month. The move threatened to reopen a controversy the Authority thought it had decently settled once and for all earlier this month. (ENR Sept. 20, p. 25)

MACHINERY TOO—Tennessee's municipal revenue bond law has been interpreted by the State Supreme Court to permit cities to finance both buildings and heavy machinery for private industrial plants. Since the decision early this month, at least six municipalities have taken steps to issue bonds for financing new industry. Among them Elizabethton's $4 million bond issue for Textron, Inc., approved by earlier election, is now expected to be raised to $6 million to take care of plant machinery.

SAME THEME, DIFFERENT SETTING—The three-way battle over who will build a hydroelectric project at Niagara Falls has resumed before a House Public Works subcommittee. Mostly it is a repetition of testimony already given the Senate Public Works Committee (ENR Aug. 23, p. 27). The Federal government, the State of New York, and the private utilities are wading into each other with fervor. Action is expected this week.

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For greater safety under foot, in your plant and on your products

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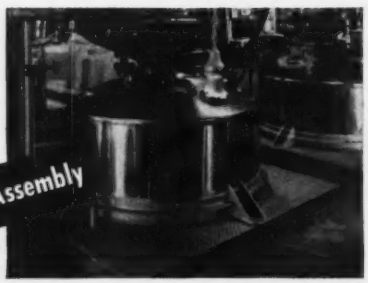

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CONSTRUCTION TRENDS

THE BUSINESS OUTLOOK

After a lull this summer, business generally is headed toward new records this winter. But—barring a war or a big new buying scare—business should get through at least the next six months with no more than simmering inflation.

• **More Military Spending**—Two major forces are pushing up the volume of business. One is the defense program, which is just beginning to turn out weapons on a large scale. From now on, defense spending will be rising steadily, reaching an annual rate of $65-$70 billion late in 1952 or early in 1953.

Business spending for new plant and equipment is the other big force behind the rising volume of business. Business is part way through one of the biggest expansion programs in history. The Securities and Exchange Commission estimates that capital spending in the last half of 1951 will be more than 27% higher than in the same period of 1950.

Capital spending will dip slightly this winter—as shortages slow up new constuction. But it promises to stay high well into 1952. Many expansion programs in basic defense industries will continue right through the year. That's true for aluminum, steel and electric power, among others. Much of the work that was planned for this fall is being pushed into 1952 by shortages of steel and other metals. Even the vital steel industry can't get enough structural steel to carry out its fourth-quarter expansion plans.

• **Less Inflation**—High production and a slow-down in sales have helped hold down prices since inflation eased off at the end of last spring. The prospect now is for a simmering inflation running through the winter.

One reason why prices promise to be fairly stable is that consumer goods industries are still feeling the after effects of the public scare-buying spree in late 1950. The big rush of buying made industry boost production of all kinds of consumers goods—from television sets to men's clothing. When the public slowed its buying last spring, business found inventories going up fast.

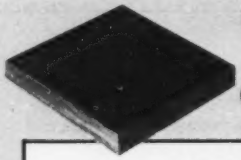
Inventories are still high, but they are being worked off as buying begins to pick up this fall. As sales rise, inventories won't be such a problem. And in consumer durables shortages of materials are cutting back production more and more.

In the fourth quarter, autos and appliances will get only 58% as much steel as they had in the first half of 1950, along with 54% of the copper and 46% of the aluminum. Inventories are not likely to be much of a problem in these lines for very long. By year's end, the word is likely to be "shortages" rather than "surpluses" in many lines.

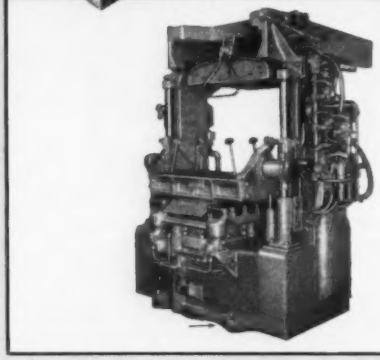
With inventories returning to more normal proportions, inflation will again be a problem. People have plenty of money to spend, and they are getting more money all the time. Continued wage increases are expected to send disposable income—the total of personal incomes after taxes are paid—to an annual rate of at least $230 billion by the second quarter of next year. That compares with a $220 billion rate in the first half of 1951. That foreshadows increasing pressures under prices next spring and summer.

• **The Outlook—With general business running close to capacity, the prospect is that only government restrictions and shortages of materials will limit construction. Builders can expect more pressure for increased wages, and some of the prices they pay may go up—steel, for instance, might rise if the steel industry grants a sizeable wage increase this fall. But price increases in the next six months are likely to be slow in coming. And prices of some building materials—such as lumber—may even come down a bit more.**

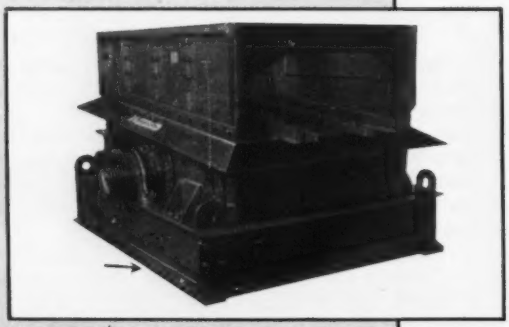
The next Trend will go into the outlook for construction in more detail.



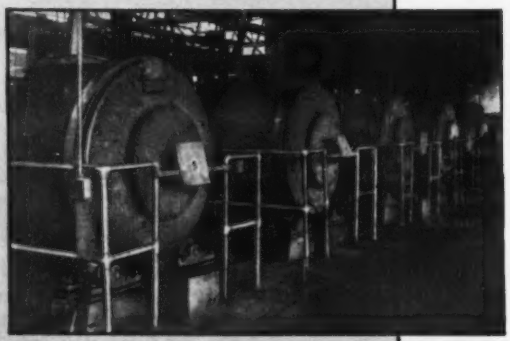
FABREEKA



JOLT MOULDER



SHAKEOUT MACHINES



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THE FOUNDRY is one of a wide variety of industries in which **FABREEKA** has been used for many years for mounting heavy equipment where the absorption of impact shock and the isolation of transmitted vibration is desired. By adjusting itself to slight inaccuracies of bearing surfaces, **FABREEKA** distributes the load properly, prevents chipping or breaking of concrete and prolongs the life of both machines and building. **FABREEKA** reduces noise, prevents structural fatigue, helps maintain alignment, eliminates grouting, and reduces maintenance and breakdowns. **FABREEKA** is built to give years of service under the most severe operating conditions.

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NEW YORK CHICAGO DETROIT SPARTANBURG
PHILADELPHIA PITTSBURGH OAKLAND

Grass-roots aid for roads

IN THE SAME WEEK that high government officials in Washington were reported not to be unduly concerned over the slowdown of the nation's road replacement program, a campaign to enlist the support of Mr. and Mrs. John Q. Public for a more adequate highway-building program was launched. In a full-page advertisement in newspapers across the country the Goodyear Tire & Rubber Co. told the public that "We Must Face the Highway Crisis Now."

Using only a few easily read paragraphs, P. W. Litchfield, chairman of the board of the Goodyear Company, tells why congestion on our highways is "one of the greatest home-front threats to every American." The reasons do not need to be repeated here.

This advertisement is to be followed by others in national magazines each month for the remainder of this year and during 1952. Each will tell briefly why adequate highways are so essential to this country, and will tell what the individual highway user can do to see that we get the needed roads.

An appeal of this kind to the individual citizen holds much promise. As we have said in earlier discussions of this subject, little can be expected in the way of an expanded highway program except by a movement that starts at the grass roots and reaches the members of state legislatures in sufficient volume to offset the pressure that taxpayers' protective associations are constantly bringing to bear—without serious reflection on the consequences—to keep down state expenditures.

More federal aid will help, but the main source of more highway money must be the state legislatures. They must find the money to match federal aid and to finance local road work not in the federal program. Members of those legislatures are in a difficult position, due to rising costs and ever increasing demands. But a few states have shown that legislators will approve an expanded highway program if it is soundly set up financially and has widespread support. Others can follow their example if enough citizens can be made aware of the need for action NOW.

State water resources development

IN MOST AREAS of the United States federal development of major water resources projects is taken for granted. A major reason for this is that most river basins include parts of several states. A second reason is that financing of large-scale works has to a great extent appeared impossible except on a federal level.

But if the trend thus established toward federal control seems inescapable to many, California, at least, is determined to fight it. Studies currently under way there are intended to lead to state construction of some major works (p. 48). And there are two factors, particularly, that are favorable: In California, drainage areas, except for the Colorado River, are largely within the state boundaries; and indications are that state financing for many projects is feasible.

Now is a propitious time to resolve the issue. The initial features of the state-conceived but federal-built Central Valley project are in operation (ENR Aug. 2, p. 28). Some additional federal work is already under way, and plans are being developed for more. The defense program and the reluctance of Congress to appropriate for new work should hold the federal program to its present limits for a while—at least long enough for California to complete its studies.

What will happen when the state has a program ready is an open question. To date there has been no coordination of state and federal operations and there have been sharp jurisdictional disputes between federal agencies. Although California should be encouraged to undertake the development of its underdeveloped water resources, it appears probable that federal agencies will oppose any program the state can come up with if it includes projects on which those agencies have done any work or to which they could lay claim under federal laws as now interpreted. That is an unfortunate situation, but if it is not recognized in the current planning, it could do more harm if ignored than if it is accepted as an obstacle to be overcome. For empire building from Washington is still a powerful force.

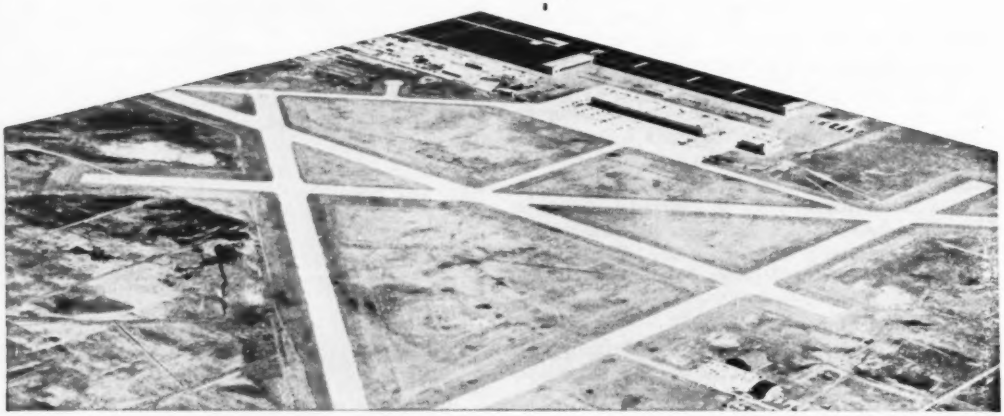
Alternate designs

THE NEW PROCEDURE announced by the Corps of Engineers for accepting alternate designs from contractors bidding on Air Force dormitories is a welcome innovation. True, alternate designs have been permitted before on Army designed work, but the requirements—complete designs in as little as a week or two—were patently impossible. Now the alternate designs need be in only enough detail to permit easy evaluation of their cost advantages. Working drawings will be prepared after the contract is awarded.

Obviously this new attitude toward alternate designs is born of the emergency, and is not now conceived as an acceptable procedure for more normal times. Yet its success would undoubtedly strengthen the claims of those who see in the alternate design method a way to improve our construction practices both from the standpoint of cost savings and the advancement of the art.

European countries permit and invite alternate designs from contractors quite generally, and with good results. Such a practice injects cost competition into design whereas we confine it to construction methods. It has disadvantages, but they are not serious enough to warrant the poor opinion of alternate designs that exists in the U. S.

8 winters . . . impact of countless high-speed landings prove DURAPLASTIC'S durability



O'Hare Field, Park Ridge, Ill. Designed and supervised by U. S. Engineers and the Austin Company. Contractors: Standard Paving Co., White Consolidated Inc., and Thos. McQueen Co.

● For eight years, airplane tires have smacked against the Duraplastic-paved runways at O'Hare Field in Chicago. And during 8 winters, innumerable freezing-thawing cycles have severely tested the surfaces. Typically, against time, traffic and weather, the concrete made exclusively with Duraplastic* has remained durable and highly scale-resistant. Here's why:

Duraplastic cement minimizes bleeding and segregation in concrete and thus fortifies it against the scaling action of de-icing salts and damaging effects of freezing-thawing weather.

Whether used for paving or other construction, Duraplastic air-entraining portland cement makes better concrete. Less mixing water is needed for a given slump. The resulting concrete is more workable, more plastic and more uniform. It dumps, spreads and finishes easily.

YET DURAPLASTIC* COSTS NO MORE

It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, New York.

OFFICES: *Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.*

*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

ENR-D-130

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Makes Better Concrete at No Extra Cost

"THE THEATRE GUILD ON THE AIR"—*Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network*

ENGINEERING NEWS-RECORD

SEPTEMBER 27, 1951 VOL. 147 NO. 13

First quarter demands show 1952 structurals scarcity

Non-defense construction to suffer nearly all year; military requirements to soar January to March; industrial expansion boom to follow later

Scarcity of structural steel will continue to limit construction activity through most of 1952. That means late starts even on some projects closely geared to the mobilization program.

And the situation will get worse long before it improves. That's the view of Defense Mobilizer Wilson and his top aides. There's proof of it in the estimates of structural demands for the first quarter of next year that the controllers are now reviewing.

Military requirements will soar to new heights in January-March. At the same time, industrial expansion needs—for such vital new plant as steel, aluminum, other basic production facilities—will be nearing a peak. These two demands, which have top priority in the mobilization program, could absorb more than the 1,320,000 tons of structural shapes and forms that will be produced in the quarter.

• **No step-up**—Production of structurals can't be stepped up. First, the steel makers couldn't get any substantial increase in production facilities completed in time to meet peak demand.

Then, too, the mobilizers figure present facilities will be more than adequate once mobilization needs start to slack off. That will be next fall, they estimate.

Meanwhile, they plan to space out all construction that can be rescheduled without drastic effects on the mobilization program or vital civilian needs. They've settled on industrial expansion as the likeliest prospect for this type of rescheduling.

• **Cuts seen**—Translating this thinking into terms of its effects on specific programs is up to the Defense Production Administration, which already has started on the job. But only one thing is certain at this point: All construction except that of the armed forces and the Atomic Energy Commission will have to be cut back to some extent during the first quarter.

Also set is a real crackdown on non-defense construction. The controllers have been comparatively liberal with projects already under way, even with some that had not been started. But DPA figures this type of building will be largely completed during October-December. So there'll be few new starts on commercial and non-defense projects. Appeals for construction licenses and materials on the basis of "hardship" will get little further consideration.

• **More for steel**—Beyond that, DPA experts are talking of further reductions—below fourth-quarter levels—of materials allotments for projects hitherto considered urgent. An exception probably will be expansion of steel production facilities. Fourth-quarter allotment of structural for steel furnaces and rolling mills was 49 percent under estimated requirement. No such reduction is anticipated for the first quarter.

But DPA is thinking of possible savings on three other important programs:

Electric power—Under present plans, electric generating capacity is scheduled to increase 40 percent above the 1950 level by the end of 1953. The controllers estimate that an expansion of less than 25 percent would take care of actual military and industrial demands for that period. DPA concedes these figures don't reflect a completely valid picture of the power program, but it feels they indicate some "fat" can be lopped off.

So there'll probably be pressure to postpone starts on new plants, slow down work on any that aren't directly tied in with industrial or military needs. The controllers say that the copper shortage will slow down deliveries of equipment for new plants, anyhow.

Railroad equipment—Experts at DPA and other mobilization agencies are wondering if the goal of building 10,000 new freight cars a month cannot be pared down until the structural pinch cases. They also may try to talk the railroads out of converting from steam to diesel locomotives for a while.

Natural gas—Something like a complete "freeze" on pipeline construction may be in the works. Estimated requirements for gas lines about equal the expected deficit in steel for oil lines, which rate as more essential to the mobilizers to carry out their programs right now.

ENR index ready

The semi-annual index of ENGINEERING NEWS-RECORD, January-June, 1951, is ready for distribution. Copies will be sent automatically to all who have ordered earlier indexes in recent years. Copies will be supplied free of charge also to other subscribers who request them.

Requests should be directed to the Editor, ENGINEERING NEWS-RECORD, 330 West 42nd Street, New York 18, N. Y.

Mortgage market softens for FHA and VA loans

Break-up of the mortgage logjam has begun. In the last two weeks, definite signs have appeared that the big lenders are back in the market—not only for conventional mortgages at 4½ and 5 percent, but also for FHA 4¼-percent paper and even VA 4 percent at par.

First definite indication of the change came from the Prudential Insurance Co., which operates directly through its own agents instead of through mortgage banker correspondents.

The company has told its agents it has money to lend on tract developments—and to buy FHA and even VA mortgages at par, in some ratio (not reported) to conventional loans.

Other insurance companies will be meeting in the next few weeks to set policy for 1952 and will probably follow Prudential's lead.

• **Less backlog**—Conditions are ripe for such a change. The insurance companies have worked off the heavy backlog of commitments that have supported the large volume of housing starts this year.

It was this backlog that caused the insurance companies to withdraw temporarily from the market when the Federal Reserve Board pulled the peg on government bonds last March. After sinking almost to 96 in June,

government bonds have now climbed to 98 and above.

At the same time, life insurance sales have increased, after falling off in the first quarter of the year. And in other important sources of money to lend, deposits have climbed in both mutual savings and commercial banks.

• **Quick change**—Drying up of the mortgage market came quickly last March. This time the mortgage market may become liquid just as quickly. With materials shortages and regulations restricting new starts, lenders may be competing for mortgages by the end of the year—perhaps bidding FHA and even VA mortgages above par.

Construction price curbs delayed at least 30 days

Price controls on construction, scheduled to become effective Oct. 1, will not be imposed until Nov. 1 and maybe later, it was learned today from the Office of Price Stabilization.

Basis for the regulations have been announced. (ENR Sept. 6, p. 23.) Complexity in forming them into workable controls, however, has delayed drafting of the regulations.

At the present time the regulations are still being written at the Branch level in the OPS. After they are written, they must still be reviewed and receive approval from three more OPS offices before they go to OPS Director Michael V. DiSalle for signature.

• **May take longer**—Informed sources said this week, all of these approvals would take at least another 30 days and perhaps longer.

Chances are the Regulations will also be reviewed again by the 15-member Construction Industry Advisory Board, before final enactment.

After they are issued, the regulations will be given to the industry with adequate time provisions to permit compliance by contractors.

$75 million ore venture to start north of Duluth

Arundel Corp., Baltimore, Hunkin-Conky Constr. Co., Cleveland and L. E. Dixon, San Gabriel, Calif. have as a group under the name of Hunkin-Arundel-Dixon, been awarded contracts by Reserve Mining Co. for construction of beneficiation plant and other facilities at Beaver Bay, Minn.

The venture is expected to cost in excess of $75 million. Location is about fifty miles north of Duluth and work is now getting under way. Contract to be completed in 1955 with plant scheduled to start operation in 1956.

Included in the contract is construction of a 47 mile long railroad between Beaver Bay and Babbitt, latter location of lean ore to be beneficiated; harbor facilities including breakwater and docks; primary crushing plant at Babbitt and secondary crusher, power house, and concentration and pelletizing plant at Beaver Bay.

• **Tunnels planned**—Considerable tunneling is necessary at Beaver Bay to obtain huge amount of water needed in processing taconite. That tunneling and power distribution, warehouses, repair shops and iron ore loading equipment on docks are included in the contract.

Initial beneficiation plant will have capacity of 2.5 million tons of concentrated ore per year but provisions will be made in its construction to enable later enlargement to capacity of ten million tons per year.

A one section plant is being re-equipped at Babbitt now with operations expected to start next year. Capacity will be 300,000 tons per year. The Beaver Bay plant will be in multiples of the section now being installed at Babbitt.

Managers of Reserve Mining Co. is Oglebay, Norton & Co. Owners are Armco Steel Corp., Republic Steel and National Steel.

Congress hears reasons for flood relief funds

Armed with voluminous reports, top government officials have begun telling Congress why the flood stricken Midwest needs the $400 million President Truman requests for rehabilitation.

Before closed session of the House Appropriations Subcommittee last week those who testified included: A. E. Howse, special representative of Mobilization Director Charles E. Wilson; Secretary of Agriculture Brannan; Administrator of the Housing and Home Finance Agency Raymond Foley; and Deputy Director of the Reconstruction Finance Corp. Peter Buchowski.

Mr. Howse said half of the $400 million requested should be used for indemnification, another $150 million for loans in the flood areas, and the remaining $50 million for a revolving disaster insurance fund.

"It has been established," he said, "that the recent flood was the greatest disaster of its kind in the nation's history with direct losses of more than $2.5 million in Kansas, Missouri, Oklahoma, and Illinois and indirect losses already estimated to be more than $1 billion.

Meanwhile, both Senate and house have for consideration legislation setting up a commission to study plans for a Missouri Basin Commission to study and recommend an integrated Basin development program.

Anti-pollution drive hits thirty cities in Ohio

Thirty Ohio cities have been asked to begin sewer facilities or face court action by Attorney General C. William O'Neill in a state-wide anti-pollution drive. All 30 have been cited by the State Health Dept. for pollution violations.

The orders have met widespread response, Mr. O'Neill reports. In the Mahoning River valley alone, plans are under way for approximately $30 million in sewage treatment facilities—among them a $10 million disposal system in Youngstown, and a $6 million system in Warren.

First city singled out for stream pollution in the campaign was Tiffin. Last week Tiffin's city council enacted measures to finance construction of a $2.8 million sewage treatment plant and sewer system. O'Neill said legal action against the city will be held in abeyance.

• **Campaign grows**—Next notified were the cities of Dover, New Philadelphia, Coshocton, Lorain, Cambridge, Athens, and Logan. They were told their sewage situations constitute a "dangerous threat to the public health of Ohio's citizens."

A few days later the drive was carried to the Mahoning Valley. Last week cities in the Miami River valley received similar orders, and this week

Eklutna bids lowered

Rebidding for construction of the Eklutna hydroelectric tunnel in Alaska produced figures substantially below those received for the same work in June.

Palmer Constructors, consisting of Peter Kiewit Sons' Co., Morrison-Knudsen Co. and the Coker Construction Co., figured low at $17,348,865, as compared to the $21,321,695 low bid at the June opening. The estimate of the Bureau of Reclamation was $18,175,568.

An alternate schedule, calling for a high-level tunnel which would require construction of a dam to raise the level of Lake Eklutna, drew a low bid of $16,391,192 from the Grafe-Callahan Construction Co., Rhoades-Shofner and D. G. Gordon, Los Angeles. The government's estimate on this schedule was $15,687,384.

cities dumping sewage into Lake Erie were notified.

O'Neill acted under the 1949 pollution law, which carries a maximum penalty of a $500 fine for each 30-day violation, plus costs of litigation. A much stiffer law to bring about compliance with the terms of the eight-state Ohio River Valley Sanitation Compact becomes effective Sept. 27, and operative a year later.

• **Response healthy**—In most cities facing the orders, plans are underway to comply. In Lorain, Miamisburg, and Defiance, voters will decide on bond issues in November. Athens has bonds ready to sell.

Zanesville, Ohio, has received a federal loan to undertake engineering plans. Dover, New Philadelphia, and Cambridge have engineers preparing plans. Warren and Niles both are ready for a sewage system financing program, with plans completed. At Middletown, treatment plant construction plans have top priority.

$15 million rearrangement of Oklahoma City planned

The Chamber of Commerce of Oklahoma City has launched a $15 million construction program which will change the face of its metropolitan area.

Announcement was made to startled citizens last week, that the program was packaged down through and including purchase of property for right-of-ways, and projects will start immediately.

The program includes:

• Provision for construction of an of an eight-lane expressway through the city.

• Removal of 14 miles of old railroad line and rebuilding of seven miles to serve the city's industries.

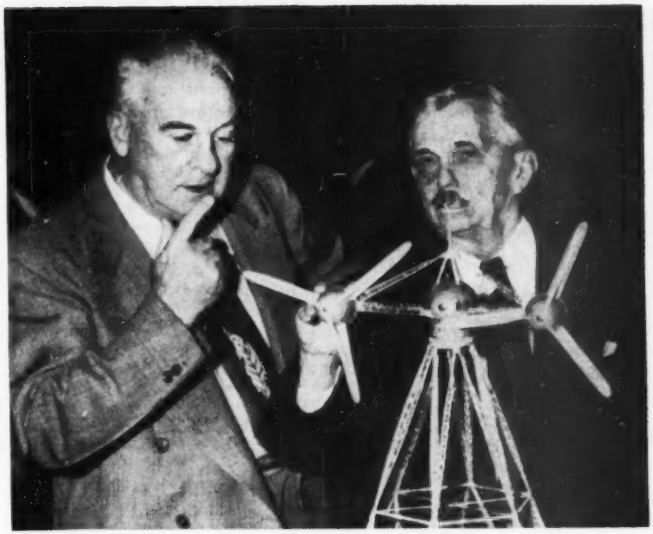
• Setting up at least nine new industrial districts for firms seeking plant sites in the city, and providing for future expansion along highway and railroad routes.

• Start of a new state fairgrounds.

Chamber of Commerce board members, city planners, and certain city and state official who knew of the plan held their secret until everything was set to go. Behind the scenes money was loaned, land was bought, and gifts of land were made.

• **Cooperation cited**—Stanley Draper, Manager of the Chamber said 284 local business men had guaranteed to pay banks more than $1 million if the deal failed. The Chamber could not pay.

The new express highway will cost local taxpayers nothing except the cost of the right of way, which probably will be paid for by a bond issue.



ULTRA-MODERN WINDMILL—Rep. John R. Murdock, Democrat, Ariz., sponsor of a bill to finance a $2,750,000 experimental giant windmill electric generator taller than the Washington monument, fingers his chin as he inspects a scale model shown last week to members of the House Interior Committee by Percy H. Thomas (right)of Montclair, N. J., design engineer. (AP wirephoto)

Labor 'cleared' on Scott Air Base work

State's Attorney Richard T. Carter and Sheriff Max L. Hall have given organized labor a clean bill of health after their month-long investigation into alleged labor feather-bedding in St. Clair County, Ill., location of Scott Air Force Base.

A $10.7 million construction program of the air base has been held up because bids from general contractors have been too far above estimates made by the Army Corps of Engineer's Chicago District.

Mr. Carter and Mr. Hill said they have found nothing to substantiate charges that the labor situation was the main cause for the high bids.

• **Cite bids**—To support their conclusions, they said that new bids submitted for the air base improvements in Chicago early this month were sharply under those submitted at earlier lettings, although still considerably above the Engineers' estimates.

Mr. Carter said, "the wage scales for labor are higher here than in other parts of the country, but contractors reported the quality of workmanship is far superior in this area and they get more for their money in the long run than with cheaper labor elsewhere."

Mr. Carter also said the practice of requiring contractors to use one laborer for every two carpenters in the area "pays its way and was not a case of feather-bedding."

• **St. Louis strikes**—Another flareup of jurisdictional disputes in St. Louis between AFL carpenters and building laborers and hodcarriers unions last week held up construction of two building projects involving about $6.5 million.

Strikes halted work on the $5 million Lever Bros. Co. plant in Pagedale, St. Louis County, and on the $1.5 million Brown Shoe Co. office building in Clayton, Mo.

Rep. Thomas B. Curtis of the Twelfth Missouri District which includes St. Louis County and part of St. Louis, has urged the Senate Labor-Management subcommittee to speed its investigation of the St. Louis construction labor situation.

$37 million housing plan proposed in New York City

New York's City Planning Commission has received a proposal for a new $37 million slum clearance housing project along Central Park West.

The project to be known as Manhattantown, would be privately built and operated, and would include 17 twenty-story buildings with 2,720 apartments.

New Interpretations of NPA-CMP rules published for construction industry

Ten-page compendium contains 71 explanations to help clarify questions on controlled materials for contractors and engineers

Seventy-one interpretations that came out in a single package this week will help contractors, owners and their engineers understand better what NPA-CMP construction rules mean. But a number of points will need further clarification.

The ten-page compendium is worth reading. You can get a copy from your nearest NPA-Commerce Dept. field office. Eleven of the explanations had been issued previously, but 60 of them are new.

There are a few surprises in the package. For example, sheet metal duct work and steel pipe are defined as structural steel and must be included in your figures both under the general heading of carbon steel and under the specific heading of structural steel.

• **Structurals defined**—By NPA definition, structural shapes are "those rolled flanged sections having at least one dimension of their cross-section 3-in or greater, commonly referred to as angles, channels, beams and wide flanged sections." This means that any standard rolled sections, from a 3 x 2½-in angle, 3-in I-beam, or 3-in channel up, are structural shapes.

B-products (standard stock items produced by manufacturers) are not included in your project requirement totals for either carbon steel or structural steel.

The new NPA interpretations make clear that you do not charge against your steel allotment any of these B-products: bar joists; lally columns; fabricated reinforcing bars (i.e. bars that have been both bent and welded); steel roof decking; stran steel; open-web steel joists, or steel that comes to you in the form of reinforcing inside reinforced-concrete blocks, beams, roofing or floor tile precast by a manufacturer.

• **Must list all**—But when you are getting A-product steel—the kinds of steel or steel products covered by your allotment—you must include all such steel, whether new or used, imported or domestic.

In computing your quantities of controlled materials—copper and aluminum, as well as steel—you must include the quantities your fabricator needs in fabricating Class A products for your job.

Standard concrete reinforcing bars are controlled materials and are not B-products. A standard reinforcing bar is either smooth or deformed, and either straight or bent to shape—but not bent and welded as defined above for fabricated bars.

• **Rules set**—On the question of self-authorization, the builder of a commercial public or religious (but not recreational) structure may self-authorize 2 tons of steel and 200 lb of copper per project per quarter. Likewise, a prime contractor building an industrial plant may self-authorize delivery orders in consecutive quarters until the building is completed.

Under the copper restrictions, a builder may use Type K tubing for underground water service from the street to a house or building. He must figure the weight of this copper tubing in computing the specified quantities of copper under Direction 1 of CMP Regulation 6.

Even if a contractor has copper in his own inventory, he must file application for an exception before he can use for any of the purposes prohibited by Section 7 of order M-4A. For aluminum, this rule applies even more broadly. No A-product aluminum—such as sheet aluminum—can be used for any purpose on any kind of construction except industrial building without special NPA authorization.

• **Project outlined**—As to what constitutes a single project, NPA points out that in the sinking of a well or wells for the water supply of a new building, each well or series of wells is a project separate from the construction of the building. The well contractor may self-authorize up to 2 tons of steel and 200 lb of copper per project per quarter.

Similarly each gasoline station at a different location is a separate project, even if it is one of a chain of stations being built.

If somebody else—producer, fabricator or supplier—is holding for your account prior to Oct. 1 your requirements of controlled materials for completion of a building that falls into neither the amusement-recreational nor multi-unit residential classes, you can go ahead and start construction at any time to use those materials, provided (1) You comply with all NPA restriction ssuch as the copper-aluminum restrictions of Section 7 in Order M-4A, and (2) Your job does not require delivery of your controlled materials after Sept. 30 in quantities greater than specified in Schedule 1 of Direction 1 to CMP Regulation 6.

Army Engineers scored in new report

For the second time in a month, the Army Engineers this week felt the sting of a bitingly critical report by the House Appropriations subcommittee on Civil Functions. Using a committee staff investigation as ammunition, the appropriations group shot holes in Army Engineer benefit-cost estimates for the perennial Tennessee-Tombigbee waterway scheme.

On Aug. 20, the Civil Functions subcommittee charged the engineers with misleading Congress and the nation on cost estimates for many proposed projects (ENR Aug. 30, p. 26). The report this week dug into the Tennessee-Tombigbee promotion, which has been pushed before Congress by various groups since 1875.

Under the proposal, the Army would make a 39-mile cut through the divide separating the Tennessee basin from the Tombigbee watershed. South of the cut, the plans propose a 41-mile canal to the east fork of the Tombigbee.

• **Concept Stated**—"The basic concept of the project," the House group stated, "is that it will provide a water route from the Gulf of Mexico inland, as an alternate to the Mississippi River."

On the basis of its long investigation and study of recent Army surveys, the subcommittee recommended virtual abandonment. The group said that "additional planning funds should not be appropriated" and declared specifically that "in no event should funds be appropriated for initiation of construction."

"With respect to the unexpended funds hitherto appropriated," the subcommittee continued, "such funds should be withdrawn from this proposed project."

• **Estimates Hit**—The report riddled Army Engineer estimates to benefits that would result from the project. In 1945, the report points out, the Army estimated 1.05 to 1 and in 1947 increased it to 1.13 to 1. The subcommittee's investigative staff estimated the benefit-cost ratio to be about 0.27 to 1.

Arguments that the project is "vital to the national defense and to the Atomic Energy Commission" were termed fallacious by the subcommittee. The report step by step blasted other arguments in favor of the project—including one "recently advanced" that iron ore could be shipped from Venezuela to Mobile and thence up the proposed waterway to Pittsburgh, Youngstown and Gary.

ASCE 100th birthday to provide spark for year-long engineering observances

Convocation, pageant and exhibit planned for 1952 in Chicago will portray role of engineers in U. S progress

Huge convocation, pageant and exhibition encompassing all branches of engineering is planned next year for Chicago to depict engineers' vital role in U. S. way of life.

In September when the American Society of Civil Engineers meets in Chicago to celebrate its 100th anniversary, it will be part of a much larger celebration of the contributions of engineering in all its phases to our national progress and present standards of living.

That is now the assured outcome of over two years of planning by the Board of Direction of the ASCE and a Centennial Celebration Committee that it appointed in the Fall of 1949.

• **Early planning**—Under the chairmanship of Malcolm Pirnie, New York consulting engineer and the vice chairmanship of Irving V. A. Huie, president of the New York City Board of Water Supply, the planning was started early in 1950, with such leaders in the Society as R. E. Daugherty, E. E. Howard, Gail Hathaway, Carlton Proctor and Ralph Budd taking an active part.

The cooperation of the other Founder Societies and then of all engineering groups in the country was enlisted. A non-profit corporation, Centennial of Engineering, 1952, was formed with Lenox R. Lohr as the head and with a drawing fund of $17,000 provided by the ASCE.

Mr. Lohr, himself a civil engineer, headed the successful Chicago Century of Progress Exposition in the '30s and more recently the Chicago Railroad Fair. Presently president of the Museum of Science and Industry in Chicago, Mr. Lohr has directed the Centennial planning to its present definite status.

• **Programs outlined**—The celebration will continue throughout the year with the major activity coming in the summer and fall.

Programs will be built around three major activities; first a pageant, second, special exhibits and finally, from Sept. 3 to 13, a convocation of all of the leading U. S. engineering societies.

The first two activities will be directed toward the general public, but will also be of interest to engineers. A stage production will be presented daily from July through September, telling the human interest story of technical advancement. At the same time a new permanent educational exhibit will be installed in the Museum of Science and Industry designed to emphasize the contributions that engineering has made to the nation and its unique standard of living. Holabird, Root & Burgee, Chicago architects, are already making preliminary sketches.

• **Huge gathering**—The convocation is forseen as the greatest gathering of engineers ever assembled. At present, 38 engineering societies have signified their attention to take a part.

The general program will be centered in the Museum, which includes a number of auditoriums and a 1,000 seat theater. Concurrently the various societies will hold their own conventions in various hotels of the city.

Many foreign delegates will be present, and the U.S. Department of State, through its division of international conferences, is an active participant in the planning.

• **Financing explained**—As to financing, the ASCE has already set aside $42,000 to support its own program and to assist in getting the work of the Centennial Corporation under way. Each society will finance its own meeting at the convocation, but in addition a campaign is in progress to raise $1 million to finance the other major phases of the celebration.

Charles F. Kettering of the General Motors Corp., as chairman of the executive committee of the Centennial corporation, is in charge of procuring the necessary funds. Already nearly a quarter of a million dollars has been pledged by industrial firms and others.

The officers and directors of the corporation are listed in the accompanying table. For the convocation, Howard Peckworth, managing director of the American Concrete Pipe Association, is chairman of the general arrangements coordinating committee and G. Donald Kennedy of the Portland Cement Association is chairman of the Technical Program Coordinating Committee. E. Lawrence Chandler, assistant secretary of ASCE has been loaned to the Centennial Corporatio non a full-time basis as convention manager.

Frank Edwards in the position of general manager is on leave from his regular job as director, Department of Civil Engineering, Illinois Institute of Technology.

Centennial of Engineering, 1952, Inc.

Officers

Lenox R. Lohr, President
Carlton S. Proctor, Vice-President
Titus G. LeClair, Treasurer
Frank W. Edwards, General Manager

Executive Committee

Charles F. Kettering, Chairman
Lenox R. Lohr
Carlton S. Proctor

Directors

E. G. Bailey—Vice President, Babcock & Wilcox Co., New York
J. W. Barker—President, Research Corporation, New York
Waldo Bowman — Editor, ENGINEERING NEWS-RECORD
J. C. Brown—Owner, Firm of J. Calvin Brown, Los Angeles
Ralph Budd—Chairman, Chicago Transit Authority
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Gail A. Hathaway, Special Assistant to Chief of Engineers, Washington, D. C.
H. T. Heald—President, Illinois Institute of Technology
I. V. A. Huie—President, Board of Water Supply, New York
C. F. Kettering—Research Consultant, General Motors Corp.
T. G. LeClair—Chief Electrical Engineer, Commonwealth Edison Co., Chicago
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H. S. Mudd—President, Cyprus Mines Corp., Los Angeles
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Honorary Directors

A. D. Bailey—Vice-President, Commonwealth Edison Co., Chicago
B. F. Fairless—President, U. S. Steel Corp., Pittsburgh
Herbert Hoover—Palo Alto, Calif.
C. H. Tompkins—President, Charles H. Tompkins Co., Washington, D. C.

Weigh aluminum moves

The driest summer in its history is proving costly to the Pacific Northwest. Low river levels have resulted in a power shortage which threatens to develop within a week into a "brown-out".

All major aluminum producers have been authorized by Mobilization Director Charles E. Wilson to move their plants out of the region unless the shortage is overcome promptly.

New plants involved are those of Aluminum Co. of America at Wenatchee, Wash., and Harvey Machine Co. whose $42-million defense loan authorization already has been held up at the direction of the Interior Dept. to permit further investigation.

Operating plants affected are those of Reynolds Metals Co., Inc., at Troutdale, Ore., and Longview, Wash.; and the Alcoa plant at Vancouver, Wash. They provide roughly half the country's aluminum supply.

APWA Congress is told:

Steel situation for public works may not improve much for another year

J. Roland Carr
Associate Editor

Detroit—Public works officials—hard-pressed to get steel and other materials for their construction projects—saw little relief in sight at the 57th Annual Congress of the American Public Works Association, held here last week.

Substantial improvement in the structural steel situation is still a year away, said James W. Follin, of the Defense Production Administration. The reinforcing steel picture is nearly as bad, and there is serious question whether we shall have enough copper to manufacture supplies needed to finish even those buildings for which we have the steel to construct.

Holding out little hope of an increase in supply of structural steel for public construction during the early quarters of 1952, Follin predicted that structural steel demand for the first quarter of 1952 may be 200% of the available supply; and nearly that high for the second quarter. In fact, said he, no real improvement in the steel supply picture appears possible before the last quarter of next year. At that time much of the steel for steel-manufacturing plant expansion will have been delivered.

• **Cites example**—Some projects, now ready to go, may be halted by their owners becoming discouraged by material shortages, the inability to complete the project quickly, or a belief that future construction costs will be more favorable.

Canada speeds highway

Work on the first all-paved highway across Canada is going ahead at full speed in eight of ten provinces. To Sept. 1, contracts had been let totalling over $50 million—one-sixth of the estimated cost.

Major work under contract to date is located in: Ontario ($20 million); Newfoundland ($3.3 million); Prince Edward Island ($743,526); New Brunswick ($3.6 million); Manitoba ($2.6 million); Saskatchewan ($4.8 million); Alberta ($4.6 million); and British Columbia ($10.2 million). No work is under way yet in Quebec or Nova Scotia. The cost is evenly divided between the federal and provincial governments.

High bids already are having a quieting influence on the public construction field. In dollar volume, the 1952 public construction volume is expected to be 20% below 1950, he said.

• **What APWA wants**—Topmost needs and aims of public works officials were indicated in resolutions adopted at the meeting.

Briefly, they are: Adequate federal funds for implementing and expediting a well-balanced and properly organized civil defense program . . . re-consideration by the National Production Authority of any restrictive measures it intends to impose upon street and highway construction—both of which are essential to our national defense and the nation's industrial potential . . . by a unanimous vote the association pledged its members to wage an intensive scrap drive to see that dormant equipment, tools and supplies are quickly funneled into the proper channels to reach steel mills.

The association also reaffirmed its stand, taken at last year's meeting, that the federal government in its adoption of various controls recognize the vital necessity of continued construction and maintenance of municipal facilities. These include, chiefly: water supply extension, sewerage, streets, snow removal operations, and refuse disposal.

• **Engineers as managers**—Responsibility of city engineers and other public works officials are increasing tremendously, declared C. E. Ridley, executive director, International City Managers' Association, Chicago. Today these officials average less than 10% of their time on enginering; the remainder being devoted to the complex problems of management. This is a direct reversal of the trend 25 years ago, said he.

• **Municipal equipment**—Held in connection with the four-day meeting, which had a registration of 830, was an indoor-outdoor display of construction equipment and supplies used in the public works field. An estimated $1,250,000 equipment was displayed by the manufacturers who made up a large part of the 50 exhibitors.

What's needed in the way of improved refuse collection was pointed out in one of the technical sessions, by Robt. S. Hopson, chief of operations, Department of Public Works, Richmond, Va. This includes: Trucks equipped with mobile telephone or radio communication equipment for expediting collections; relatively small, enclosed compactor type trucks for servicing narrow driveways; and large collection equipment capable of handling four or five of the 6- to 10-cu yd refuse collection bins in use today.

Taking a look into the future, Hopson pointed out the possibility of refuse collection by the vacuum method. This would entail stationary containers at the householder's premises; with the collection equipment being capable of shredding the refuse and drawing it into the enclosed truck body by vacuum.

• **Civil defense**—Public works organizations, with their existing armies of experienced and trained personnel, are the keystone of civil defense, declared Perry T. Ford, director, Engineering Services Division, Federal Civil Defense Administration. Their correlated activities and contractural relations with construction and building contractors, as well as materials supplies, will be an invaluable aid in the event of an atomic or other disaster caused by enemy agents.

In preparing for such eventualities, said Ford, public works officials must formulate a wide range of plans and procedures. In addition to planning the emergency repair of their own facilities such as water supply, streets and bridges, sewage disposal, municipally-owned electric power and gas services, they must establish well-conceived plans for mutual aid and mobile support to neighboring communities.

• **From here and there**—Many of the technical papers dealt with innovations and expedients adopted by municipalities to improve their public works facilities and services. A few thumbnail sketches include: Miami, Fla. nets $100,000 annually from its refuse-salvage operations . . . Berkeley, Calif. has developed a "Roughometer" which tests the riding qualities of 200 miles of streets in determining their priority of rehabilitation . . . Wichita, Kan. keeps close control over the width of curb-cuts in front of drive-ins to insure equitable curb-parking space for the motorist . . . Detroit conducts a vigorous community-relations educational program to keep its citizens informed of the necessity and value of public works improvements . . . in-service training courses given by the public works department of Hartford, Conn. are paying substantial dividends in better employer-employee relations, improved service and more-satisfied workers . . . design studies have disclosed that maximum traffic at Chicago's International Airport (O'Hare Field) will ultimately require only six runways instead of 10 as contemplated in the original master plan; thus saving $15,000,000.

Funds sought in Congress for Palisades Dam project

A drive to review work on the $76-million Palisades hydroelectric project in southeastern Idaho is being headed by Republican Senator Henry C. Dworshak of that state.

The bureau of the budget dropped the project from its 1952 money requests on the theory it was a new project, not desperately needed for defense. Congressional appropriation committees left it out of the funds bill because it had not been included in budget requests.

Some $3 million has been spent in preliminary work on Palisades, and Dworshak believes the power features of the project are needed to meet power demands in the area. He is now asking the budget bureau to submit a request for funds for the project.

To support his argument he has submitted a report by the Federal Power Commission that estimated load will be 148,000 kw greater than the dependable capacity by late 1956. The first three units of the Palisades project would furnish only 135,000 kw. A fourth and fifth unit would add another 112,500 kw.

FPC receives application for South Fork project

Permission was requested last week from the Federal Power Commission to build a $26 million hydroelectric project for the Oroville-Wyandotte Irrigation District, Oroville, Cal. Known as South Fork project, it would be about 25 miles east of Oroville.

FPC to get application for Feather River project

First steps in the recently approved Feather River Project construction (ENR July 12, p.25, June 7, p.25) were taken when the California Water Project Authority gave the go-ahead for filing application with the Federal Power Commission.

The state is asking permission to construct, operate and maintain dams, reservoirs, and power facilities at the Feather River Project's key site, the $400,000,000 Oroville Dam and Oroville afterbay dam.

State Engineer A. D. Edmonston, who presented the project to the last state legislature, has been authorized to negotiate with public and private agencies in connection with the Oroville Reservoir, including rerouting a section of the Western Pacific Railroad, and 20 mi of state highway.

The project, heralded as second in importance to the Central Valley Project, will divert about 3,500,000 acre ft of water to water-short areas of the state as far south as San Diego. Also planned is a $64,500,000 power plant, and $19,000,000 worth of transmission lines and substations.

GIRDER FOR THE BASCULE DRAW—The four main girders for the bascule draw spans of the $6 million Atlantic Beach Bridge have been positioned. Here one of the 95-ft 62-ton beams is being lifted from a barge and positioned by Merritt, Chapman & Scott's large floating derrick The Colossus. Scheduled for completion by Jan. 1 over the channel between Lawrence and Atlantic Beach, Long Island, the bridge will be 1,500 ft long and will carry six 11-ft traffic lanes over a high-water clearance of 30 ft.. The toll bridge will eliminate one of the worst suburban bottlenecks in Nassau County.

Power company expands

Consumers Power Co., of Jackson, Michigan, is planning an additional expansion program for 1952 which will cost $40 million. It now has a $51 million construction program underway.

NPA changes to affect water, wastes interests

Two changes due to be made this week affect the Water Resources Division of NPA—claimant agency for water and waste project builders:

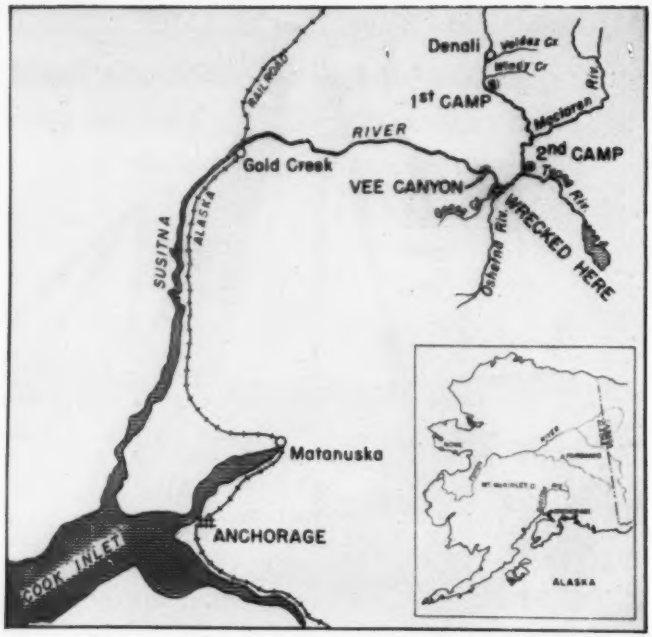
(1) A water utility order is due to come out that will permit more small jobs to be self certifying. Up to now any job requiring over 2 tons of steel or 200 lb of copper in their controlled forms require filing of a CMP-4C for materials. These minimums will be raised an amount as yet unspecified.

(2) A successor to Harvey Howe of Lock Joint Pipe Co., who has headed the claimant agency since its inception three months ago, is to take over the job of director, water department, San Diego Calif.

B&O to build new station

The firm of Hunting, Larsen & Dunnels has been given the job of preparing architectural and engineering plans for a new Baltimore and Ohio station and office building in Pittsburgh.

To be located in the vicinity of Grant and Water Streets, it will replace the present B & O station at Smithfield and Water Streets which will be torn down to make way for the Penn-Lincoln Parkway.



Where Reclamation engineers sought a dam site, found trouble on the Susitna River.

Reclamation men get their dam site after grueling Alaskan adventure

Only a few prospectors and trappers had ever gone into the wild Susitna River area of Alaska. So far as is known, not even a native has run the river by boat.

Yet the swift currents pouring through deep narrow gorges that make the area so inaccessible, also hold promise for hydroelectric developments which would help open Alaska mines and build new timber and pulp industries.

It was to evaluate these possibilities that a party of engineers from the Bureau of Reclamation set out to explore the area. Details of their journey have just been released by the Department of Interior for the first time.

The stranded men kept alert for bears.

• **Journey begins**—Last July 9 a party of four Reclamation men with a guide were flown in to a spot on the banks of the Susitna opposite the mouth of Valdez Creek to the location of an old deserted gold camp named Denali.

The party consisted of Daryl L. Roberts, Juneau, 42-year-old engineer and chief of the party; Ade E. Jaskar, 38, geologist, of Juneau; Terrence L. Robbins, 33, instrument man of Palmer; Harry Johnson, 25, a rodman, of Juneau; and Frank Swanda, 55, guide from Anchorage. Their plan was to navigate downstream, exploring 120 miles of unknown water, to a base camp in Devil's Canyon.

On the following day, their equipment for the trip was flown in. It included two Douglas aluminum "Air Skiffs," one 14-ft long, the other 15-ft long, both powered by outboard motors. Into them they packed their field equipment and the following morning started downstream.

• **Misfortune strikes**—On the first day, they made only 10 miles, spending much of their time pushing, poling and dragging their boats over sand bars. They surveyed one possible dam site between Butte and Wind creeks and made camp that night near Butte Creek. A float plane dropped them additional gasoline.

On the next day they surveyed another dam site and made 27 miles. It was a good trip under clear Alaskan skies, amid spectacular scenery. That night they camped about three miles below the mouth of the MacLaren.

But the following day saw a turn in their fortunes.

• **Treacherous rapids**—Early they picked up their cache of gasoline which had been dropped in advance near the mouth of the Tyrone River. Shortly after they shoved off, however, they began to encounter boulders in the stream.

The water broke into an almost constant series of rapids, drenching them with spray as it cut through the gorges. Twice they beached their boats for bailing.

By noon they were about a mile above the Oshetna River. Ahead they saw extraordinary swells in the river extending almost from one shore to the other.

The boat containing Roberts and Johnson hit the swells first. One dumped water into the boat, the second almost filled it, then the load shifted and the boat turned over.

The second boat followed into the swells and it also capsized.

• **Icy struggle**—Icy currents swept boats and crews downstream, swirling and tossing them at swift speeds around boulders and over rapids. For nearly a half hour the men clung desperately to their craft. Robbins clung to two pack sacks containing sleeping bags.

They passed the mouth of the Oshetna, which added to their speed. Then as the current bore one craft near the shore, Roberts and Johnson tried to beach it, but failed from exhaustion and gave it up to crawl ashore themselves.

As the second boat approached, it was swept into a shallow spot by a quirk of current, and the boat rolled completely over in a swell burying the

Rescue helicopter crashed while landing.

The swift river through narrow gorges holds promise for hydroelectric development.

men under surging water, but they managed to struggle ashore.

Robbins clambered ashore another half mile downstream.

• **Face wilderness**—When they finally assembled, the men were four miles downstream from the point where they had overturned. Bruised and bleeding, they were facing the subarctic wilderness with nothing except what was in their pockets—and Robbins was minus one boot.

That was July 13. They had set July 17 as the day for an emergency air search to begin if they had not arrived at their base camp at Devil's Canyon. They faced four days of anxious waiting.

In the next two days, they salvaged enough equipment and provisions from the shore of the river to set up the rudiments of a camp. They fashioned fish hooks from paper clips and caught grayling. Fish and chowder warmed their spirits.

At night they kept a vigil for Alaskan brown bear—the largest carnivore in the world. Attacked by one, a man is in bad trouble even if he has a rifle. These men had only their pocket knives.

• **Await rescue**—On the following day Roberts and Jaskar headed downstream to Vee Canyon where they made sketches for a possible dam site. On the following day, they watched for their rescue plane. They watched in vain.

The rescue helicopter, piloted by Gene Lush of Anchorage and Edwin Stewart, Bureau of Reclamation survey man, spotted the crushed remains of one of the boats.

As they landed to investigate, the ship went out of control a few feet above the water, and crashed. Lush and Stewart were uninjured, but now they also were stranded.

• **Undaunted**—It was another torturing day for the three groups of men isolated on the river banks, before the Tenth Air Rescue Squadron, spotted the smashed helicopter.

It was four more days before all men had been picked up and flown back to civilization. All men were safe, but the Reclamation job was still incomplete.

Undaunted by their experiences, Robert and Jaskar headed back to Vee Canyon on Sept. 22, taking with them another Reclamation engineer, Webber, Jack Zimmerman of Alaska Airlines was pilot.

• **Another crash**—While Roberts and Weber were exploring, Jaskar and Zimmerman crossed the river in the helicopter, and hovered in to land. One pontoon hit a small mound, the ship crashed over on its side and in another moment was on fire.

The men escaped and smothered the flames with dirt dug up by the gouging blades. Again the party was stranded.

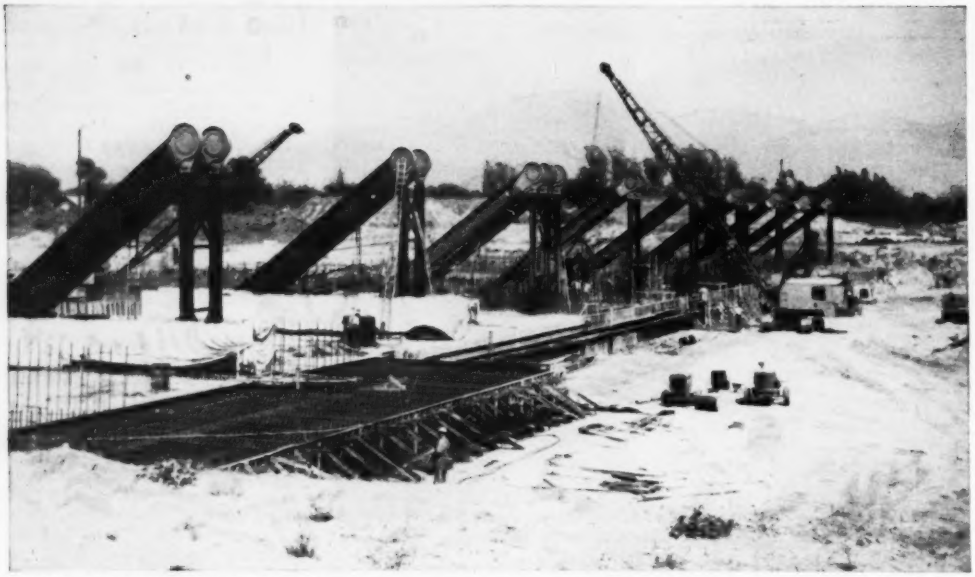
It was three more days until rescue planes spotted them, and another day before they were rescued.

Final reconnaisance of Vee Canyon was made by helicopter. The ship putting down on narrow ledges, where rock samples were gathered, and the canyon's sections profiled. The result —Vee Canyon has proven to be a feasible site for a power dam according to Reclamation engineers.

Last week Secretary of Interior Oscar L. Chapman wrote the conclusion to the high adventure—awarding medals and promotions to the Bureau of Reclamations field men and the guide for their exploits.

Roberts, Weber, and Stewart each were promoted one step in grade. The others, who have since left department employment, will receive silver medals and certificates of meritorious service signed by Secretary Chapman.

Daryl L. Roberts, chief of party, and Ade E. Jaskar, geologist review experiences.



RADIAL GATE TRUNNION ANCHORS are prominent feature of spillway for Whittier Narrows Dam in California.

Grouted preplaced aggregate for 8-ft slab

PUMPING GROUT into preplaced aggregate was the method used to construct an 8-ft-thick base slab for the Corps of Engineers' Whittier Narrows Dam in California. The foundation mat, 546 x 110 ft in plan, will support nine automatically operated, 50-ft-wide radial gates in the spillway structure of the dam. Designers selected this concreting procedure to assure the structural integrity of the spillway assembly—a most important design consideration.

The 18,000 cu yd of concrete (largest Prepakt concrete installation to date) was grouted in nine separate "pours" by the Prepakt Concrete Co., subcontractors under Winston Bros. Co. The general contract (for $3,022,478) includes the first major work on this flood control project intended to regulate flash floods on the Rio Hondo and San Gabriel River in the coastal plain east of Los Angeles.

This type of concrete was adopted after logical consideration of design requirements for the job. Core samples cut from the slab have shown that good concrete is produced. It is high in unit weight (151.4 lb/cu ft), has good aggregate contact, and averages 2,751 psi on 90-day tests.

• **Spillway structure with nine gates**—Hydraulic considerations of the design required a spillway structure comprising nine 50-ft-wide by 29-ft-high radial gates to be placed across the channel of the San Gabriel River. The dam as a whole involves an earthfill dike 3.2 miles long and ranging in height up to 56 ft.

The radial gates are to be of an automatic operating type that required float wells on each side. The gate trunnion anchors and the float well chambers are enclosed in pier-like concrete structures that rise 39½ ft above the base slab. To protect the gates from binding at the side of these piers it is important that the entire structure, including the foundation slab, be rigid enough to preclude differential settlement.

Thus, it was primarily because of the heavy weight of the gates and their operating mechanisms and because of the necessity for rigidity that an 8-ft-thick, heavily reinforced foundation slab was called for. The heavy slab was also useful in resisting the overturning, sliding and uplift forces that would be imposed by a full reservoir.

• **Deep sandy subsoil**—The underlying material was sandy in nature with some gravel mixed in a very few clay lenses. This reached a depth in excess of 150 ft, making pile or caisson support impractical. But the foundation soils were found to have sufficient strength to sustain the loads imposed by the structure if careful procedures were followed.

The 546-ft-long base slab is divided into three sections, each section supporting three gates and being a separate structural unit. Design of the slab (its thickness and the reinforcing) was based upon the amount of differential settlement that it could take without causing the gates to bind. Differential settlement tolerance allowed in design was ½ in. between the centerline and one edge of a monolith.

To reduce possible settlement, the slab area was first loaded with a 150,000-cu yd earthfill that remained for about 3 months. Settlement records as noted on eight gages indicated a maximum subsidence of 0.28 ft due to this load. When the surcharge fill was removed, the underlying foundation material rebounded 0.20 ft. However, the important point demonstrated is that the area is free from any tendency toward large differential settlement. Thus, if the three-gate monoliths settle at all, they are almost sure to settle uniformly.

• **How to place an 8-ft slab**—Once the necessity for the 8-ft-thick slab was

definitely established, the next question facing designers was "How shall we place this slab in the most economical way that will protect the structural integrity of the slab?"

Analysis, on the assumption that regular concrete would be used, indicated the best method to be pouring each 182-ft-long monolith in seven continuous pours, each just under 1,000 cu yd. Such pours would require a large concrete batching and mixing installation. Further, it would introduce structural uncertainties in the six construction joints and in pouring concrete through and around the heavy reinforcing (two layers near the bottom of the slab and three layers near the top using 1¾-in. square bars on 6- and 12-in. centers).

The use of preplaced aggregate and grout was then considered. The engineers decided that this type of concrete could be placed in three "pours" for each monolith—this would minimize structural uncertainties introduced by construction joints. Further, the size of the concrete plant need only be regulated by other concrete work involved and not by the necessity of making 1,000-yd continuous pours. (With preplaced aggregate, grout is all that need be batched and mixed.) Steel positioning is also easier since a platform of aggregate is available to work on and on which to lay the steel.

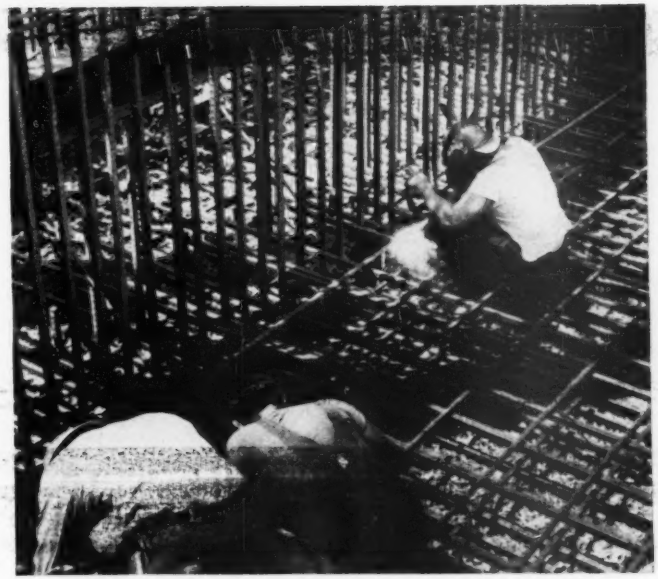
A further advantage that was helpful on the Whittier Narrows job was the almost complete lack of shrinkage to be expected with such concrete. With the aggregate preplaced and in point-to-point contact, the tendency of the matrix to shrink would be minimized. That would mean there would be no harmful shrinkage cracks even with the 8-ft thickness.

All of these reasons outweighed the only apparent drawback—the fact that such a slab had never been cast by this method.

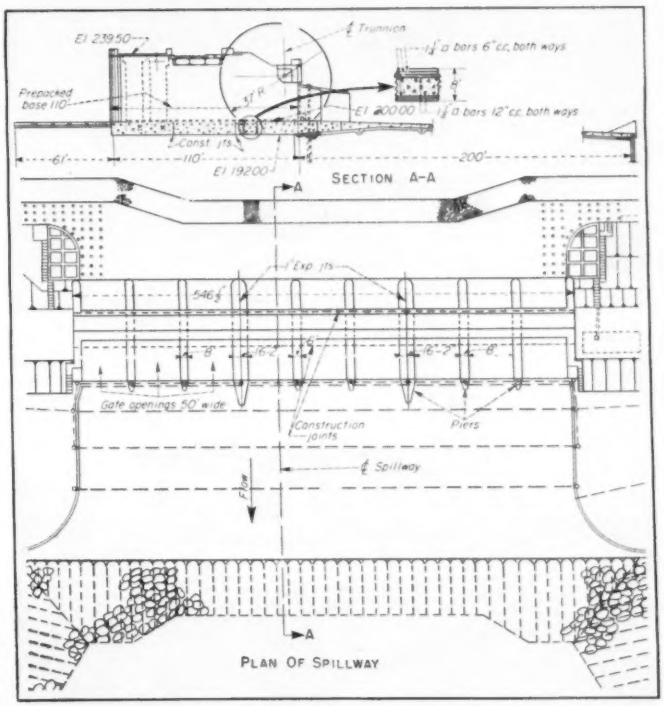
• **Here's how it worked**—First step in the process after the outside forms had been erected was to preplace the aggregate and reinforcing steel. In this instance, aggregate for 6 in. above and below the steel mats was graded from ⅜ to 1½ in. in size. The bottom 6-in. gravel layer was laid first and the two bottom layers of reinforcing steel then installed.

The middle part of the slab where no reinforcing was involved included aggregate graded from ⅜ to 6 in. in size. This was placed by clamshell crane. No special compaction was required since by building up uniform layers, aggregate of this size will almost automatically occupy a minimum space. Any necessary leveling off was done by hand methods.

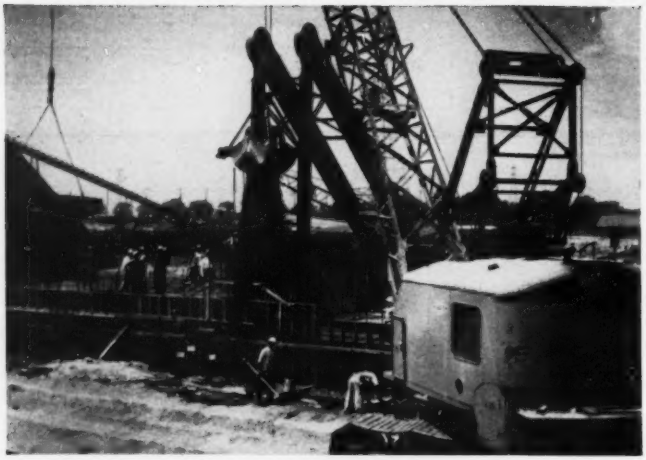
Along with installation of the ag-



REINFORCING STEEL is conveniently positioned on preplaced aggregate.



SPILLWAY STRUCTURE will include nine 50-ft-wide automatically operated radial gates. Base slab supporting gates is divided into three monoliths, each containing about 6,000 cu yd of concrete. Each monolith was formed in three pours with construction joints running parallel to the gates.



CLAMSHELL BUCKET dumps aggregate in place with final leveling done by hand.

GROUT IS PUMPED through 1¼-in. dia pipes that are raised as grout fills voids.

TOP FORM is lowered in place preparatory to second stage grouting. Double H-beams serve to hold top forms in place (left) and also act as template for aggregate leveling.

gregate, 1¼-in. dia grout pipes were placed on 6-ft centers extending to the bottom of the slab.

Because the monoliths were divided into three sections, each "pour" consisted of a slab 36⅔ ft wide by 182 ft long. The preplaced aggregate was first thoroughly soaked with water for 24 hours immediately preceding pumping. This guarded against any tendency that the aggregate might have to draw water out of the mortar and reduce its fluidity. Soaking also reduced the aggregate temperature.

• **Grouting row by row**—Equipment was available to pump grout into eight grout pipes at a time. Grout was pumped into the first row until the bottom of the second grout pipe row was covered. Then pumping in that row was started.

As grout built up in a row, the pipes were gradually pulled up. The pipes were kept 6 in. below the grout surface—similar to the procedure followed in placing tremie concrete. By this means, grout was pumped the length of the slab with grout rising at a 2-ft-per-hour rate and advancing at a 6.6-ft-per-hour rate.

Grouting through any one of the preplaced pipes was stopped when grout rose to the surface around the pipe. A top form was then placed on the aggregate and grout was injected through it to bring mortar to grade.

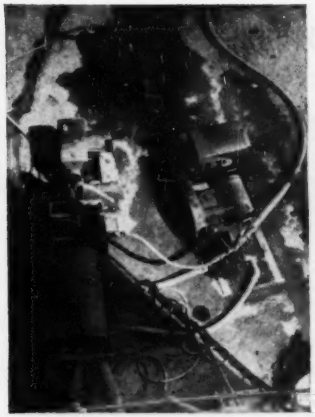
The forms were made of 2-in. studs faced with sheathing of 2-in. material separated by about ½ in. The sheathing was faced with diamond-shaped metal plastering lath, screening and muslin. Grout pipes were placed through holes in these forms on 2-ft centers and grout pumped until moisture (but not cement or sand) was forced through the face of the form. To facilitate this operation, forms were vibrated by a special air operated vibrator.

The forms were removed in a few hours (depending on air temperature) and the surface was touched up by hand floating.

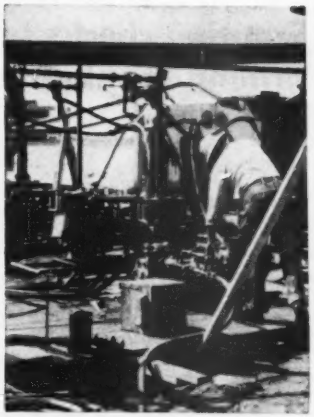
To insure a flat surface, the forms were weighted down by double 12-in. H-beams bolted together. The contractor also used a double set of these H-beams as a leveling template just ahead of the forms.

• **Admixture helps pumping**—Grout for the operation was batched in a regular batch plant installed at the job for concrete work. An additional silo was installed for a pozzolan admixture, used in addition to cement to improve the workability of the grout mixture. Also involved in the mix was a small amount of an air entraining and wetting agent patented by the Prepakt company. This sub-

FIRST STAGE GROUTING is stopped when grout appears around pipe. Aggregate here is ¾- to 1½-in. size.



AGITATOR (left) keeps grout in suspension while it is pumped (right) from the batch plant. Admixture adds workability.



SECOND AGITATOR (background) remixes grout just before it is pumped into the slab by battery of four small pumps.

CORE SAMPLE shows point-to-point contact of aggregate. Top part of core contains 1½-in. top size aggregate.

FINAL GROUTING is done through holes in top forms and continued until water from the grout is squeezed through heavy cloth form facing. Vibrator works surface moisture up into the form. Surface is touched up with hand finishing.

stance acts as a fluidifier and assures a complete coating around each aggregate particle. It aids the pumpability of the mix by retarding the set and, thus makes possible pumping of a heavily sanded grout.

The grout was mixed at the batch plant in a special double-drum, gas-powered grout-mixer. It was pumped through a 2½-in. line to a battery of four secondary pumps that pumped the mix into the aggregate. As all of a batch could not be pumped at one time agitators were placed ahead of each pumping station, to keep the grout in suspension.

With this machinery, about 30 cu yd of grout was pumped an hour. With a void content of about 37%, the 2,000-cu yd block was placed in about a 24-hour period.

• **Careful mix design**—Grout design is important to the success of prepacked concrete work, as is the use of the air entraining and wetting agent. Also important is the sand gradation—a fineness modulus from 1.5 to 2.0. This is much finer than sand for ordinary concrete, a requirement to permit the mix to be pumped into the voids in the preplaced aggregate.

Smallest aggregate size is ⅜ in. As all sand particles pass a No. 8 sieve, the resulting concrete has no aggregate particles of pea-gravel size.

The general contractor, Winston Bros. Co., placed the aggregate and reinforcing steel. Here, the subcontractor, Prepakt Concrete Co., took over to pump grout into the preplaced aggregate. Superintendent for the general contractor is Ben Richards. Project superintendent for Prepakt was Kline McKinzie. L. S. Wertz is president of the Prepakt Concrete Co. with headquarters in Cleveland, Ohio, and R. E. Davis, Jr., is West Coast field engineer, at San Francisco.

J. G. Morgan is resident engineer for the Corps of Engineers. The work is under the jurisdiction of the Los Angeles District, Col. Wm. R. Shuler, district engineer.

Grouting checks seepage under dikes forming Granby reservoir in Colorado

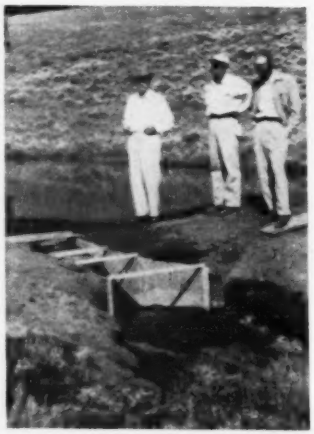
'Round-the-clock grouting operations by the Bureau of Reclamation have brought reductions in water seepage beneath the half-mile long Dike No. 1 of Granby reservoir in Northern Colorado.

Seepage through faults in the silt stone foundation under the dike developed last February, when Colorado River water began to back up behind Granby Dam—part of the $150,000,000 Colorado Big Thompson Project. In June, a $64,000 grouting contract was let, but the seepage received little public attention until early August. At that time, residents of the area, alarmed by floods in Kansas, Missouri and Northeastern Colorado, demanded an investigation to determine if there was any possibility of the dike collapsing. They asked that filling of the reservoir be halted in the interim.

After an examination of the dike, M. C. Hinderlider state engineer of Colorado, reported the dike to be in no immediate danger.

Bureau of Reclamation figures show that Granby reservoir, which was then about one-fourth full, rose 2.71 ft between July 17 and Aug. 15, while seepage increased from 6.92 cfs to 7.15 cfs and then dropped to 6.80 cfs. From Aug. 15 to Aug. 22, seepage held steady despite a slight rise in the reservoir level (0.24 ft). By Aug. 24, the seepage had dropped to 6.88 cfs.

Maximum seepage of 7.15 cfs was between Aug. 1 and Aug. 5. Bureau engineers are confident that the grouting will continue to reduce the seepage to a point "where it will be of no concern to anyone."



TOTAL SEEPAGE under the dike, measured by a Parshall flume, amounted to 6.92 cfs. Observing the measurement are C. M. Henderlider, state engineer, E. D. Bloye, state water commissioner; and U. V. Engstrom, local construction engineer of the Bureau of Reclamation.

By mid-August around 20,000 100-lb sacks of cement had been pumped into 60 ft deep drill holes. A total of about 75 men are working three eight-hour shifts daily on the project. Earlier, a shortage of cement had threatened to slow the work.

DRILLING AND GROUTING RIGS on Dike No. 1 of Granby reservoir set up to check loss through underlying rock.

Thirteen major seepage points have been located below the dike, together with a large number of smaller points. Seeping water emerges as much as 1,000 ft beyond the dike.

James H. Knights, district manager of the South Platte River District, Bureau of Reclamation, said the risk of seepage was a calculated one that was taken only after it was determined that neither the public nor the dike would be endangered.

"Original planning on the dike, done in 1938, studied the foundation to a depth of 25 ft, and the foundation was accepted as 'ordinarily watertight.' During construction of the dike in 1946, the foundation, as disclosed by the cutoff trench excavation, was studied carefully by engineers and geologists because of the fractures and fissures extending into the silt stone.

"Alternatives of extensive excavation deeper into the rock, blanket-grouting of the entire foundation area, and the adopted course of constructing the dike without special foundation treatment, and then correcting the seepage, if and when it occurred, were analyzed.

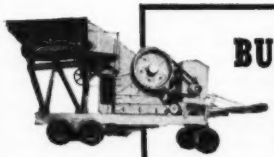
"Blanket-grouting of the entire foundation probably would have doubled the cost of the dike. There was a definite probability that seepage would not develop or, if it did, that it would be very nominal; also, that localized grouting of the seeps after they occurred would be considerably less expensive than extensive foundation excavation or blanket-grouting.

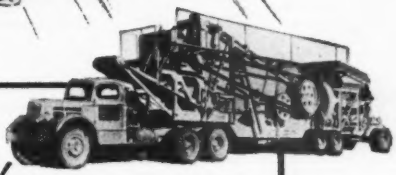
"Since the cost of repairs probably will not greatly exceed $100,000, the bureau may yet have saved nearly a quarter of a million dollars in taking this calculated risk in construction of the dike."

Mr. Knights called attention to the fact that the seepage is clear water, indicating there is no erosion. "The bureau has never lost a major project, has often met and licked leakage problems, and isn't worried about the Granby dike," Mr. Knights declared.

Loss of water is not considered serious by the Bureau of Reclamation since the engineers are confident that the grouting program now under way will be successful in sealing off the leaks. Filling of Granby reservoir beyond the present level was not contemplated this summer. Water from Granby reservoir is pumped through the 13-mile-long Alva B. Adams tunnel under the Continental Divide to provide power and irrigation on the eastern slope of the Rocky Mountains.

When filled, the Granby reservoir will cover an area of 7,256 acres and provide 544,867 acres-ft of storage capacity, of which 467,536 acre-ft is usable storage. The reservoir, including the dam, dikes and highway relocations cost about $11,500,000.





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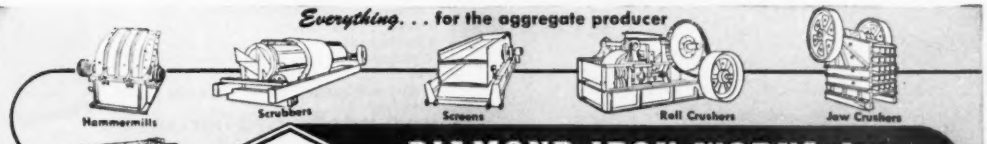

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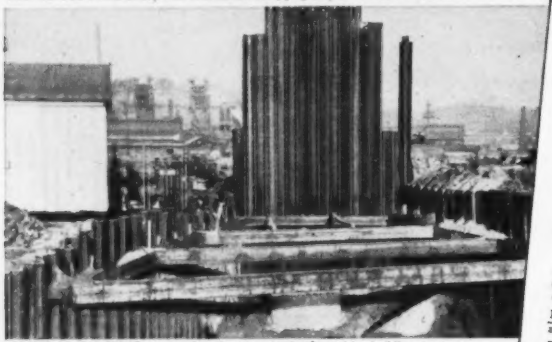
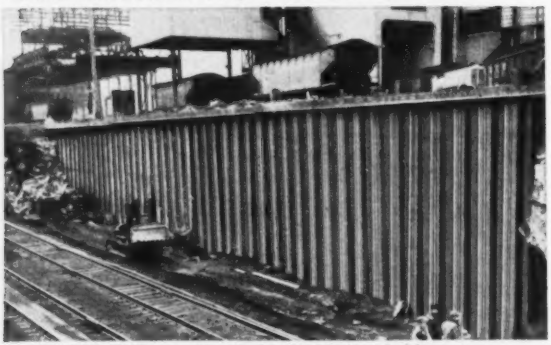
Says: P. J. SOUKUP, MORRISON-KNUDSEN CO. INC., Project Manager in charge of constructing the Jones & Laughlin Steel Corporation's present Pittsburgh, Pa., Southside plant expansion program.

FOSTER RENTAL PILING was driven to serve as a protective retaining wall along much traveled traffic artery with excavation occupying only one side of this street.



FOSTER RENTAL PILING was employed as a protection for a driox building structure during difficult excavation for the construction and installation of a 60-inch sewer line.

FOSTER RENTAL PILING, reinforced with H-beam buttresses, acted as a retaining wall for construction of a concrete wall adjacent to active-loaded overhead track.



FOSTER RENTAL PILING was used in conjunction with reinforcing tie-back beams as a retaining wall for embankment carrying active-loaded overhead railroad track.

Morrison-Knudsen Company, Inc.

CONTRACTORS AND ENGINEERS

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June 22, 1951

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P. J. Soukup
MORRISON-KNUDSEN CO., INC.
Project Manager, Pittsburgh, Pa.

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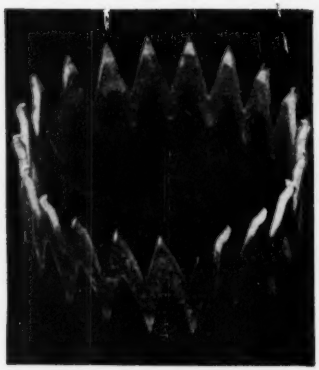
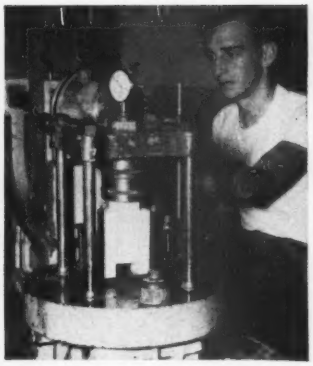




Fasteners 1-in. in diameter (left) reinforce nailed joints (center). Tests show . . .

Toothed rings strengthen nailed joints

E. George Stern
Research Professor of Wood Construction
Engineering Experiment Station

Paul W. Stoneburner
Assistant Agricultural Engineer
Agricultural Experiment Station

Virginia Polytechnic Institute, Blacksburg, Va.

YOU CAN INCREASE the strength and rigidity of nailed lumber joints at relatively low cost by hammering steel toothed rings between the members of the joints. This was indicated by tests made in the Wood Research Laboratory of Virginia Polytechnic Institute.

The toothed rings are miniatures of the toothed-ring alligator connector introduced in the United States about 20 years ago. They were made available recently to meet a long-felt need for small-size lumber fasteners that can be used with nails.

• **Nails vs bolts**—Tests were carried out not only to determine the effectiveness of nailed joints reinforced with these small fasteners but also to investigate the possibility of replacing bolts. Results indicated that small-diameter bolts can be replaced. Further investigation is needed to determine whether proper arrangements of multiple pairs of toothed-ring fasteners can be economically and effectively substituted for large-size bolts.

Steel-ring fasteners 1-in. in diameter and $\frac{1}{16}$ in. wide, with multiple prongs—a product of Metal Industries, Inc., Youngstown, Ohio—were used in the tests. Prior to nailing members of the joints, the rings were pressed into the lumber by hammering the members tightly together.

Nails were $3\frac{1}{2}$ in. long and were either plain-shank or threaded-shank. The latter, manufactured by the Independent Nail & Packing Co., Bridgewater, Mass., had $1\frac{1}{4}$-in. clearance between head and threads. The nails also were either of low-carbon steel, 0.162 in. in diameter, or hardened high-carbon steel, 0.148 in. in diameter. Since test specimens were made up of three members, one nail was required for each pair of fasteners.

For the bolted joints, standard $\frac{1}{4}$ and $\frac{3}{8}$-in. dia., 4-in. long bolts were used (actually measured 0.215 and 0.370 in. in diameter). They were placed in $\frac{1}{4}$ and $\frac{3}{8}$-in. dia holes, respectively. Steel washers 1-in. in diameter were placed under the head and nut.

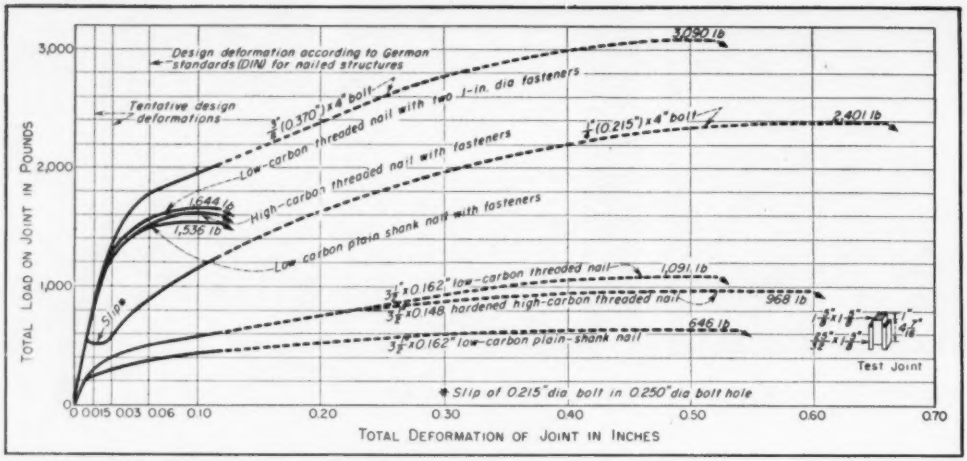
Test specimens were built up in quadruplicate. The wood was clear, planed, green southern pine of 25% average moisture content and 0.56 average specific gravity.

Immediately after assembly, joints were tested statically in compression parallel to the grain of the lumber at a uniform rate of change of deformation of 0.024 in. per min. Since joint members were fully matched by cutting from two planks, to eliminate the influence of any variables in the lumber and to allow full comparison of test results, the limited number of tests yielded significant results.

• **Nailed joints**—At 0.015 and 0.30-in. joint deformations, joints with one helically threaded low-carbon or hardened high-carbon steel nail sustained from 12 to 29% more load than joints

AVERAGE RESULTS OF TESTS ON THREE-MEMBER JOINTS

Type of Fasteners	Load in Pounds at . . . 0.015-in. Def.		0.030-in. Def.		0.060-in. Def.		Ultimate		Deformation At Ultimate In Inches	
Low-carbon steel plain-shank nail	248	100%	309	100%	368	100%	646	100%	0.540	100%
Low-carbon steel plain-shank nail with two 1-in. fasteners	765	308%	1211	392%	1481	402%	1540	238%	0.096	18%
Low-carbon steel helically threaded nail	279	112%	398	129%	510	139%	1091	169%	0.510	94%
Low-carbon steel helically threaded nail with two 1-in. fasteners	766	309%	1274	412%	1555	423%	1644	254%	0.104	19%
High-carbon steel helically threaded nail	279	112%	374	121%	482	131%	968	150%	0.600	111%
High-carbon steel helically threaded nail with two 1-in. fasteners	722	291%	1215	393%	1504	409%	1621	251%	0.110	20%
¼-in. Bolt with 1-in. washers	510	206%	566	183%	869	236%	2401	372%	0.660	122%
⅜-in. Bolt with 1-in. washers	790	319%	1285	416%	1775	482%	3090	478%	0.510	94%



AVERAGE LOAD-DEFORMATION CURVES indicate that fastener-reinforced nailed joints carry larger loads, deform less.

with a plain-shank low-carbon steel nail. At ultimate load, joints with the threaded nails carried 50% more load.

• **Fastener-reinforced joints**—Addition of a toothed-ring fastener increased load-carrying capacity at 0.015 and 0.030-in. deformations 300 and 400% over that of joints with only a plain-shank nail. At ultimate load, the increase dropped to 250%, but the joint deformations were 80% less for the reinforced joints.

• **Bolted joints**—Fastener-reinforced joints with one plain-shank nail carried the same load at 0.015 and 0.030-in. deformations as joints with a ¾-in. dia bolt and 50 to 100% more load than joints with a ½-in. bolt. At ultimate loads, though, the bolted joints proved stronger. They sustained 50 to 200% greater loads. However, the deformations were from 5 to 7 times greater than those of the reinforced joints.

• **Conclusions**—According to these test results, fastener-reinforced nailed joints carry large loads at small deformations compared with ordinary nailed or bolted joints.

In addition, nails and toothed-ring fasteners are relatively low-cost. They are also relatively lightweight: a ½-in. bolt and a ¾-in. bolt, with nut and washers, weigh, respectively, four and seven times as much as a low-carbon steel, plain-shank nail. Furthermore, nails and fasteners, being hammer-driven into the lumber, eliminate the need for drilling bolt holes.

Thus, it appears that the tested toothed-ring fasteners are an effective and efficient reinforcement for lumber joints. If combined with nails, they can effectively and economically replace small-diameter bolts.

Michigan highway laws get a complete overhaul

A sweeping revision of Michigan's highway laws has been made by the state legislature as a result of a statewide study begun in 1948. The basic law provides for classification of all roads and streets in the state, establishment of a state motor-vehicle highway fund into which all state motor vehicle revenues are to go, establishes a new formula for sharing highway revenues, sets up uniform accounting, and calls for advance planning and programming for all projects participating in state revenues. Participation by local roads and streets is limited to about 50%.

Added revenue, estimated at $30 million yearly, is provided by companion legislation. The gasoline tax was raised from 3 to 4½ cents and the diesel fuel tax from 5 to 6 cents. Increases in commercial license fees are expected to yield $5,000,000 yearly.

This legislation was initiated by the Michigan Good Roads Federation, which engaged J. P. Buckley, now chief engineer of the highway division of the Automotive Safety Foundation, to direct the engineering study. Mr. Buckley was then completing a similar survey for California.

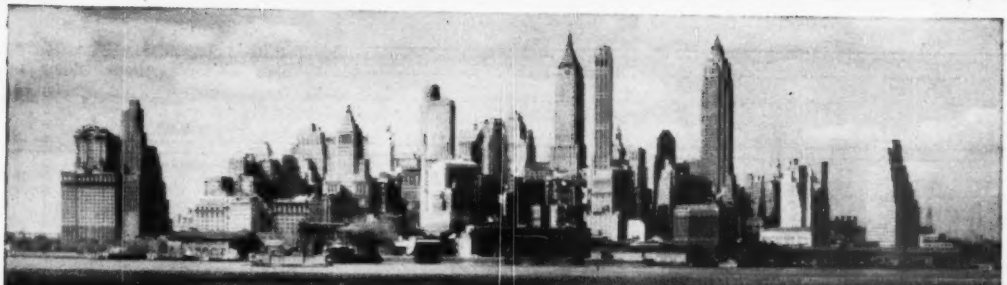
Under the new formula, the motor-vehicle fund is to be distributed as follows, based on established need: 44% to the state highway department, 37% to the county road commissions and 19% to incorporated cities and villages. The state highway department is required to spend 40% of its new construction money within municipal limits and to pay all maintenance costs on trunk highway within cities. This will more than double the cities' share of state-collected road revenues, thus meeting a major complaint against the old system.

The old formula was a complicated patchwork with little regard for need or equity.

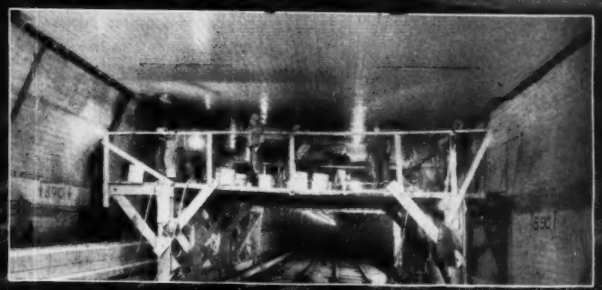
All county road commissioners are required to have a registered engineer on their staff, and city departments must set up a single individual to deal with the state highway department on all highway matters.

Counties, cities and villages must submit biennial reports to the state's highway commission showing progress being made on their long-range programs. They also must make annual report of expenditures from the motor-vehicle fund. All accounting forms are to be set up by the highway commission to insure uniformity.

Biennially, the state highway commissioner must report to the Governor and the state legislature concerning progress made on the long-range plans.



13 Fathoms under the East River



Above photo shows "WATERPLUG Crew" at work, in New York City's famous Battery Tunnel, East River, New York.

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NEW EAGLE, PENNSYLVANIA

FLOATING IN one of the 480-ft spans of the new Chesapeake Bay Bridge. Another of the bridge's trusses serves temporarily to support the big span on the barges.

Four miles of bridge spans erected without falsework

THE NEW BRIDGE across Chesapeake Bay between Sandy Point and Kent Island, near Annapolis, Maryland, will be four miles long, and will contain 117 beam, girder and truss spans plus a 1,600-ft span suspension bridge and a through cantilever bridge with a main span of 780 ft. Such variety and such length posed a challenging problem for the steel erector, just as the wide expanse of shallow-to-deep water had challenged the foundations contractors earlier.

How the foundation problem was solved was told in these pages Oct. 26, 1950, p. 32. Herein are described the superstructure erection methods developed by the Bethlehem Steel Co., which add up to some ingenious and economical variations of the familiar floating-into-place procedures for bridge span placement.

Perhaps the most spectacular fact about the erection, which involves 30,000 tons of steel, is the complete absence of falsework for the whole four miles of work. The only plant item suggestive of temporary support is a group of pile bents driven alongside the bridge about a mile from the western shore, to serve as an erection dock. Nineteen truss spans are being assembled on staging erected on these bents and then floated directly into place on the piers.

But this is only one example of the floating-in procedure. The 67 beam spans and the 21 shorter girder spans were assembled on shore, barged to the site and lifted into place by a tower derrick boat. Then, using some of these already-erected girder spans as supports, the longer girders were assembled by the tower derrick boat and in turn floated to their piers. Finally, deck travelers will be used to erect three deck cantilever spans and the central span of the through cantilever bridge.

Such diversity in erection methods and such a large number of floated-in spans have seldom if ever been encountered on a single structure before.

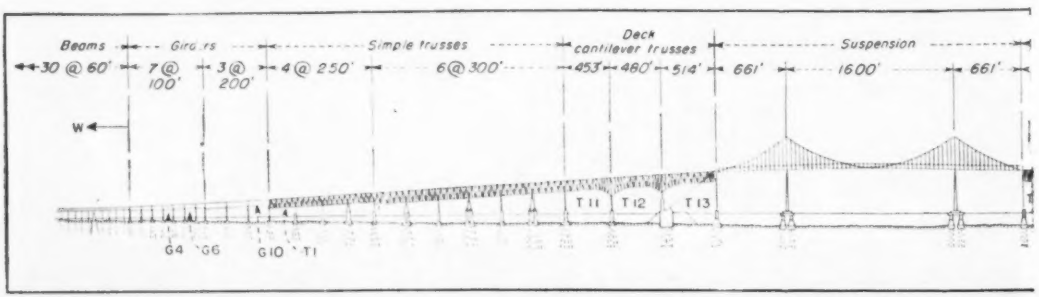
• **Tools for the job**—Naturally for such an operation adequate floating equipment is vital to success. At the top of the equipment list is a tower derrick boat whose boom heel pin is 120 ft above water. With its 90-ft boom out 50 ft, it can hoist 35 tons.

Next in importance are two sets of flotation barges, each a tied-together-pair of 32 x 128-ft units. Nine and one-half feet deep, these barges have a minimum draft of 2 ft. Their ballast compartments can be flooded for sinking at a rate of 2 in. per min., and they can be pumped out for a rise of 1 in. per min. Buoyancy tanks restrict freeboard to 1.3 ft when pumps and erection staging are aboard.

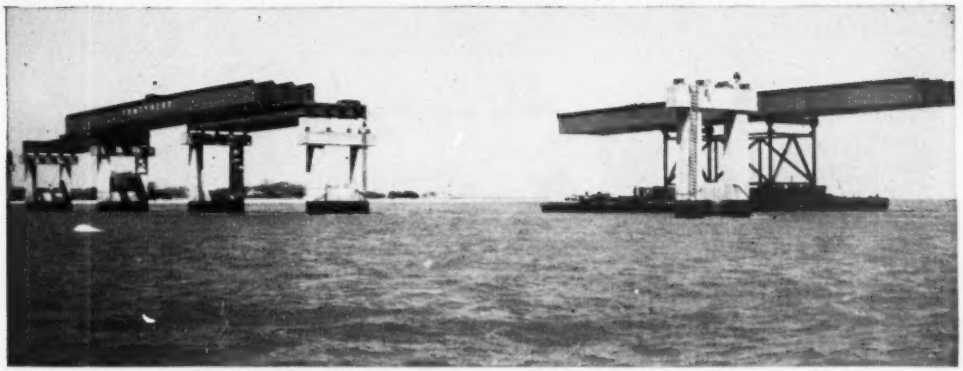
Material barges (4 to 8, depending on requirements) together with tugs for shuttling them between the site and the shipping yard at Baltimore, complete the heavy floating equipment. In addition there are many small craft for getting around the job.

Major items of non-floating equipment include four deck travelers, two Chicago booms (for suspension bridge tower erection) and hoisting engines.

• **The job plan**—The layout of the bridge is illustrated below. Basically it consists of long east and west approaches to a central suspension bridge. Each approach begins with 60-ft beam spans, followed by 100-ft



FOUR MILES OF OPEN WATER will lie beneath the superstructure of the Chesapeake Bay Bridge, which is notable for the



LITTLE GIRDERS SUPPORT BIG—The 200-ft girder spans were assembled on top of already erected 100-ft girder spans (left) and then were picked up by barges and floated to position (right).

girders and then by 200-ft girders. The remainder of the western approach is 10 simple truss spans and 3 deck cantilever truss spans, while the eastern approach includes the through-cantilever bridge and a series of 9 deck cantilever truss spans.

In contemplating the variety of span lengths and bridge types, the bridge erector broke the job down into three major operations, plus the suspension structure which was to be handled last and separately. These operations covered:

(1) Beam and short girder spans
(2) Long girder spans
(3) Truss spans

As stated previously the beam (60 ft) and short girder (100 ft) spans were assembled on shore, barged to position and lifted into place by the tower derrick boat. These approaches were completed except for two of the 100 ft girder spans—the next to last and the third from the last (spans G4 and G6 in the west approach and spans G16 and G18 in the east approach, as shown.

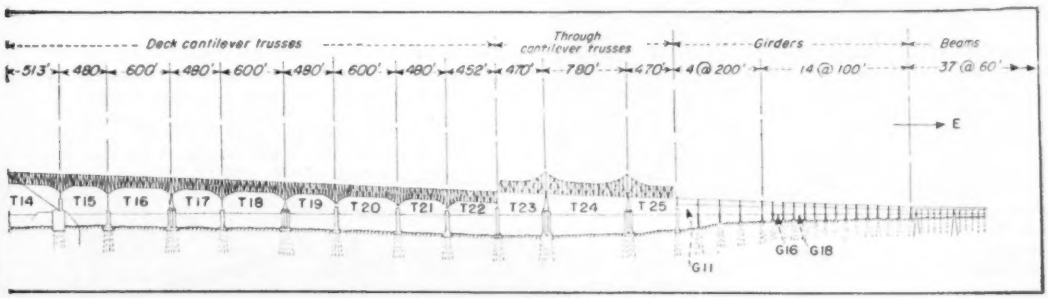
This arrangement set the stage for the next erection step, which was to assemble the 200-ft girder spans on top of the finished structure, and then float them out on barges moved into the unbridged openings. Two 200-ft spans could be assembled simultaneously, end to end, with their centers over the gaps. The spans for the west approach were assembled immediately, those in the east approach being completed later after two of their girders had served a temporary purpose in the off-shore erection dock.

• **Girders on girders**—For assembly of a 200-ft girder span on the already erected 100 ft girder spans, the material barge is stationed alongside one side of the bridge and the tower derrick on the other. Girders come in 50-100-50-ft sections. A pair of 50-ft sections is braced together (making up half the bridge width and weighing 26 tons) and hoisted to the inshore 100-ft girder span. Spotted on two pieces of transverse blocking, it projects 10 ft into the unbridged space. The second pair is spotted similarly, completing the full bridge width, and then the 100-ft sections (38 tons) are placed one by one. One end is blocked on the outshore span; the other is joined to its 50-ft section by a field splice. Finally, the remaining 50-ft pairs are set on blocking at their outer ends, and field-spliced to the 100-ft sections.

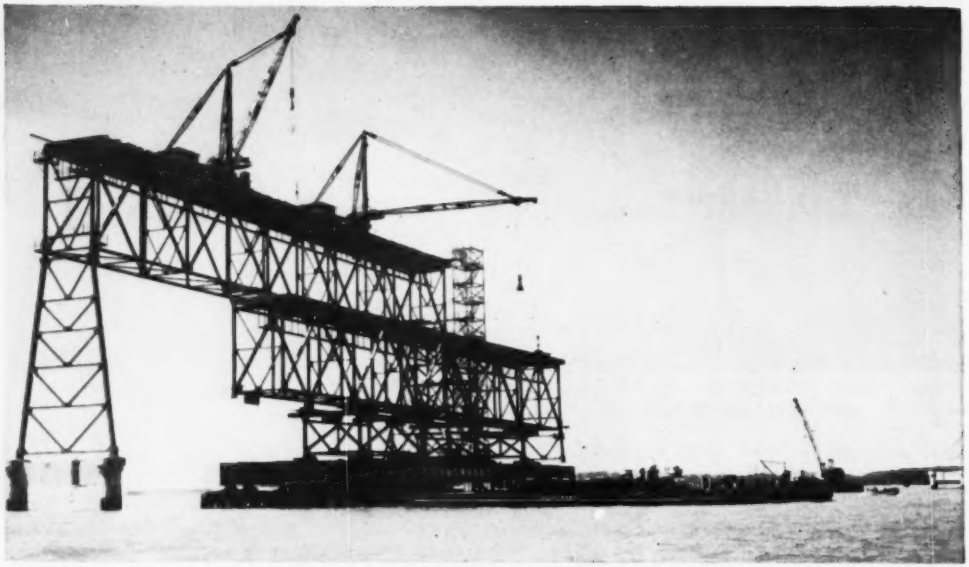
Basic blocking element is a pair of 24-in. I-beams later to be used as stringers in the truss spans. Plates and timbers complete the blocking, which accommodates the camber, crown and slope differential between the staging and ultimate girder position. (The bridge is on a 2,000-ft vertical curve, from +0.5% to +3% in this zone.) Application of blocking is complicated by Z-bar shear connectors at irregular spacing on 100-ft girder cover plates, so that it is necessary to fill the spaces with timber and set blocking beams at top-of-Z level.

When a 200-ft girder span is riveted complete it weighs 252 tons. This weight is transferred to a pair of barges through a falsework frame made up of 14-in. WF sections, the falsework height being adjusted to fit each situation.

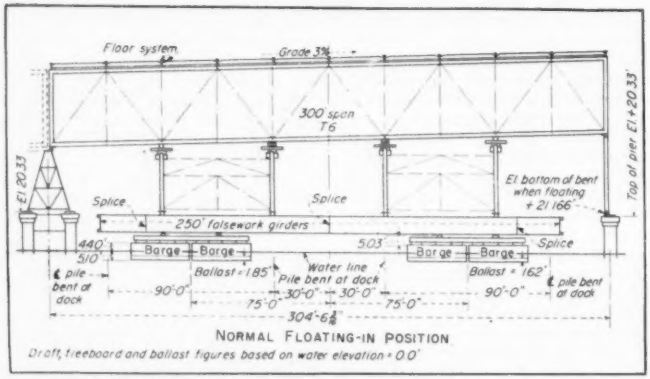
Riding on its barges, the frame is brought in 3 in. clear under the girder. Water is pumped from ballast tanks until the girder is picked off blocking. Then the girder is floated



variety of bridge types that it includes and the consequent variety of erection procedures.



ERECTION DOCK—Truss carrying travelers was floated in from pile-supported falsework stage in foreground. Thereafter it served as the erection platform, its travelers assembling 20 truss spans on the falsework. Spans were lifted off by flotation barges, moved to their final locations and lowered onto piers. Heights of falsework towers were variable, to place erection at proper elevation and grade.



FLOTATION PLAN—For each span to be floated to place, a plan like this was made. It also included barge freeboard computations for all loading conditions, as well as conversions for various tides.

to position, the ballast tanks being flooded to land it on its shoes. Floating time is about 4 hr.

Freeboard range of the barges, combined with Chesapeake Bay's light tides (−0.5 to +1.5) make it possible to float the spans at almost any tide stage. After a span is in place, however, the barges are moved from under the falsework at any tide. The falsework is left hanging from the girder until it is needed again.

• **First truss erection**—On the pile bents, the job's only fixed falsework support, which are located a mile offshore adjacent to one of the simple truss spans in the west approach, Bethlehem bolted together parts of some of the east approach 200 ft girder spans to make a 250-ft stage for truss erection. The lower flange is set high enough to clear the barges, which carry the stage, a falsework frame and the completed truss to place. These 200 ft girders come in 25-25-100-50-ft spliced units, an arrangement of 25-100-100-25 units being used for the staging. This permits the 25 ft end sections to be removed when the four shorter trusses (250 ft span) are being placed.

The first truss to be built on the pile-supported stage was the outer (and highest) of the six 300-ft spans in the west approach. Forty feet deep, it has a maximum lower-chord elevation of 105 ft.

For its erection, Bethlehem set two falsework towers on the main falsework girders. Although these towers were about 80 ft high, they were made up of sections of different heights so that the total height could be varied to accommodate subsequent trusses, all of which were assembled at their final level and slope.

The tower derrick boat erected the first truss span (two trusses 26 ft apart), taking its fabricated steel from barges alongside and working outward from mid-panels. A rocker bent was suspended from the truss for the east end support, but the fixed tower for the other end was separately set.

Floor steel, which rests on top of the truss, was erected after the truss joints that would become blind were riveted. Other joints, sufficient to leave all top-chord panel points loose, were bolted. Riveting was completed after the span was seated on its piers, so that milled ends of compression members would be in full bearing.

To move the truss to its piers,

(*Continued on p. 47*)

*Overcured Sections — unavoidable every 30' to 40' in all belts made by the flat press method. Only Rotocuring (continuous, non-stop curing) eliminates this major cause of belt failure.

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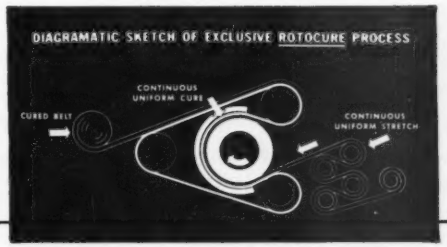
Your neighborhood tailor with a hot pressing iron can give you a simple but dramatic example of what *too much* heat and pressure applied to a given area of cloth (or rubber compound) can do to these structures. In the manufacture of conveyor belting by conventional flat press curing the result is overcured segments 2" to 4" long across the belt width. These weakened portions of the belt are inherent in this process of "start and stop" vulcanization. They get a double treatment because earlier cured areas move forward *less than a full press length.*

Rotocure, the modern BWH method, eliminates these Achilles Heels of otherwise strong belting. Your Rotocure belt is *constantly* in uniform motion during vulcanization.

How does it pay off? In (1) elimination of mechanical distortion at the press ends, (2) up to 40% increased belt flex life, (3) constant, uniform stretch, (4) uniform, abrasion-resistant covers. Remember the major CURE for high belt maintenance costs and premature belt failure is NO OVERCURING! You'll cut the costs of whatever you convey. See your BWH distributor or write us direct.

P.S. Look into BWH rotocured transmission belts also. They permit operation at lower tensions. You get an *additional* bonus in extended belt life.



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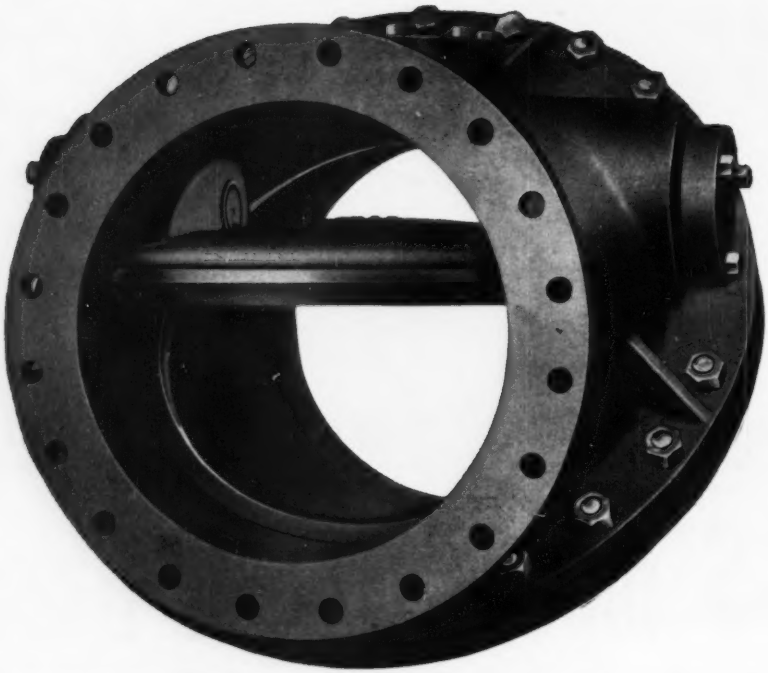
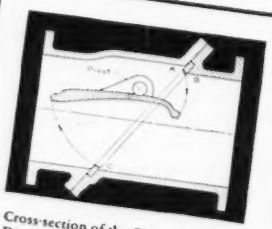


CHAPMAN

TILTING DISC CHECK VALVES

Cut Maintenance Costs with Cushioned-Closing



Cross-section of the Chapman Tilting Disc Check Valve illustrating the way that the balanced disc is supported on the pivot, with arrows showing the travel of the disc. A feature of the design is that the disc seat lifts away from the body seat when opening, and drops into contact when closing, with no sliding or wearing of the seats.

There's less wear on seating surfaces, hinge pins and bearings with the cushioned closing action in a Chapman Tilting Disc Check Valve. No destructive slamming. No fatiguing flutter. No vibration of pipe lines or adjacent structure — nor danger of opening pipe joints or rupturing pipe lines. Just a quick and quiet closure that cuts maintenance costs.

And what's more, the balanced streamlined discs in Chapman Tilting Disc Check Valves ride smoothly on the stream—reduce head losses 65 to 80% over conventional swing type checks. You'll want to know more about this maintenance-saving, more efficient check valve. Write today for engineering data, Bulletin #30.

THE CHAPMAN VALVE MANUFACTURING COMPANY
INDIAN ORCHARD, MASSACHUSETTS

Four-mile bridge erected without falsework

(Continued from p. 44)

Bethlehem brought both pairs of flotation barges in under the girders, pumped out sufficient water to transfer 967 tons of load to them as well as raising the load a foot. Selective pumping trimmed the load, and give-and-take on anchor lines moved it laterally to its position in the bridge. Here compartments were flooded to lower the truss, first onto its fixed-tower support, then onto rocker-bent anchor bolts.

The falsework girders and towers were returned to the pile bents, and the barges removed for other uses in the flotation schedule.

• **Erecting the other trusses**—This first truss then became the erection platform for subsequent operations on the adjacent pile-bent falsework. As a first step, the tower derrick boat erected two 35-ton capacity stiffleg travelers on the truss. These travelers then revised the falsework towers for correct position of the next truss to be erected and proceeded with its assembly. This truss was the inshore or lowest one, followed in order by successively higher ones, out to the erection platform.

Transfer of subsequent completed trusses is similar to that for the first, except that tugs place the barges alongside final position before winches and anchors complete the spotting.

• **Cantilever work**—Simple-truss work now is complete, and the falsework is revised to accommodate the seven anchor spans and two suspended spans of the deck-and through-cantilever structures. The revision involved removing the girders (which were reassembled to 200 ft length and installed in the east approach) and replacing them with the 360-ft cantilever suspended section of the first span east of the suspension bridge (T14, see layout). After an additional pile bent had been placed to accommodate this larger staging, the falsework towers, again adjustable for erecting units at final elevation, were placed, and cantilever span work begun.

Erection order for the anchor spans will be: T19, T17, T21, T25, T23, T15 and T12 (see layout drawing).

All of the anchor spans are 480 ft long, except those of the through-cantilever which are 470 ft. Again, this assembly work will proceed from shore panels outward. Four panels of floor steel will be installed at one end before floation, and the single bent support will be installed at the other end. Because of limitations of traveler reach, the verticals and adjacent top chord members over the through cantilever main piers (Spans T23 and T25) will be set after the spans are in place, using the tower derrick boat.

TALL DERRICK—Floating tower derrick roved the whole job. Here, it is assembbling one of the 200-ft girder spans on the already erected 100-ft girder spans.

After the anchor spans are in, the 600-ft cantilever and suspended spans —T16, T18, and T20—will be erected by deck travelers working toward each other from the piers and picking steel from barges. This procedure has made necessary the redesign of dummy top and bottom chord members at the end of the cantilevers to permit cantilevering the suspended span to the center. One set of jacking members, to go with the dummies, will be reused on the second and third spans to be erected.

The method of erecting the 780-ft main span of the through-cantilever bridge will be similar to that for the 600-ft deck spans, namely by the two deck travelers, which are initially set up over the main piers by the tower derrick boat. Special jacking members also will be used here, to handle stresses at dummies where the suspended section joins the cantilever arms.

As the job nears completion, the 300-ft suspended sections of spans T22 and T11 will be erected on the falsework and floated into place, after their cantilever arms have been erected by the tower derrick boat. Then, as a final operation the 360-ft truss section of span T14, used as falsework, will be removed and the truss floated into position at low level directly under its permanent location. Wire rope tackle suspended from previously erected structure, will then lift the span up to its final height. Weight of span to be lifted is 400 tons, and the lift is 140 ft. Then span T13 will be assembled, floated, and raised to its final position, in the same way, completing all Chesapeake Bay Bridge superstructure but that of the suspension bridge.

Cantilever work is scheduled for completion next spring. Suspension bridge work, now in the tower-building stage, should be complete for the scheduled opening of the bridge in the fall of 1952. Deck concreting under a sub-contract is keeping close behind floor-steel erection.

Steel erection for the Chesapeake Bay bridge is being handled by Bethlehem Steel Co.'s Eastern Erection District, under G. P. Bullard, manager of erection, with M. A. Matlock, his assistant, in direct charge. At the site, T. M. Martinson is resident engineer, and Oscar Brunn is foreman. J. H. Wagner is general manager of erection, with E. L. Durkee engineer of erection. For J. E. Greiner Co., Baltimore, consultants for the State of Maryland, R. A. Gilmore and Bruce Herman are project engineer and resident engineer, respectively.

Diversion tunnel finished around Yale Dam location

Working three shifts daily, hard rock miners have completed a 1,500-ft-long 30-ft dia horseshoe-shaped bore around the site of Yale Dam, under construction by Pacific Power & Light Co. in southwestern Washington. Through this tunnel waters of the Lewis River are being diverted while the dam is constructed. The tunnel, bored through solid rock, is concrete lined.

The river was turned through the tunnel in mid-September, permitting workmen to start excavating the base of the stream to bed rock preparatory to actual construction on the $26.5 million dam, scheduled for completion in November, 1952.

Yale Dam, located immediately upstream from Pacific Power & Light's Merwin Dam, near Woodland, Wash., will produce 100,000 kw of power. Operated in tandem with the Merwin Dam, the project will produce some 550 million kwh of electric energy a year.

BOOK REVIEWS

A water-supply saga

ORIGIN AND ACHIEVEMENTS OF THE BOARD OF WATER SUPPLY, CITY OF NEW YORK—Published by the board at 120 Wall Street, New York City.

This volume was intended merely as an updating of a brief brochure published by the Board of Water Supply in 1940. Actually, it is more than that: it is a noteworthy history and description of the development of New York City's great water supply system. In the 115 pages of this paper-bound book is told in matter-of-fact terms the story of one of the most romantic engineering feats of the century. Past and present engineers of the board have made the story; present personnel have written it down. All civil engineers should find something of interest in it.

California water inventory

WATER RESOURCES OF CALIFORNIA—Bulletin No. 1, California State Water Resources Board, 648 pp. Copies may be obtained from Documents Section, Division of Printing, 11th and O Sts., Sacramento, Calif., $3 plus 9¢ tax on deliveries in California.

The state of California currently has underway exhaustive studies that will develop a "California Water Plan" for long-range development of all water resources in the state. Bulletin No. 1 is the first of four to be published on these studies. It contains a thorough inventory of California's water resources. The next bulletin, due out in 1952, will itemize present water use and estimate future requirements. The third—and probably most important—bulletin will contain a blueprint for development. Finally, a fourth will summarize the preceding three.

The main significance in these studies is that they are part of an effort by Californians to carve their own destiny. The existing Central Valley project being built by federal agencies is the outgrowth of an earlier "State Water Plan." State financing of this work was impossible in depression years. But now all indications are that the credit of the state is such that many millions of dollars can be put into state works. Federal agencies also have development plans. Coordination of federal and state work is not yet a fact since no large-scale state financed construction has been undertaken. The state water studies will set the stage for future development and maybe for future conflict.

Specifically, Bulletin No. 1 contains available basic data on each of seven major drainage basins in California. These data include figures on precipitation, runoff, flood frequencies and quality of surface and ground water. Also included are data pertaining to possible large-scale sewage and waste water reclamation in the San Francisco Bay and south coastal areas.

The information presented is essential to the development of well-thought-out plans. The bulletin should be a valuable addition to the library of anyone concerned with California's water problems.

Suspension bridge design

THE MATHEMATICAL THEORY OF VIBRATION IN SUSPENSION BRIDGES — By Frederich Bleich, C. B. McCullough, Richard Rosecrans and George S. Vincent. 429 pp. Published by the Bureau of Public Roads. Obtainable from the Superintendent of Documents, Washington 25, D. C. $1.25.

When aerodynamic forces set up vibrations and oscillations in the Tacoma Narrows Bridge that wrecked its suspended structure on Nov. 7, 1940, the chain of events that produced this book began. Suspension bridge experts suggested to the Bureau of Public Roads that it head up an investigation of the problem of dynamic oscillation. An advisory board composed of a large majority of the country's suspension bridge experts was set up. One of its subcommittees —on Interpretation and Analysis—has produced this book after nearly a decade of study and investigation. The late C. B. McCullough was chairman.

The work was financed jointly by the Oregon State Highway Commission, the American Institute of Steel Construction and the U. S. Bureau of Public Roads.

In its over 400 pages of theory development and application, the book offers several new bases for safe suspension bridge analysis. One of these is a so-called energy method for determining the modes of vibration and natural frequencies of suspension bridges. The application of this method to the problem of design is developed in detail, covering the effects of torsional rigidity of the suspended structures, of flexural and torsional rigidity of the towers and of tower stays. There is a chapter on structural damping, one on the application of the theory of the flutter of a flat plate to the problem of coupled vertical and torsional modes, and a chapter on the "linearized deflection theory" as used to determine the influence of tower stays on the static stresses and deflections. An understanding of the contents of this book will be a must for every suspension bridge designer of the future.

Construction costs

CONSTRUCTION COST CONTROL—62 pp., 21 forms. Prepared by the Construction Division, American Society of Civil Engineers, 33 West 39th St., New York 18, N. Y. $5.00 ($4.00 to members).

Two things are important about this book: it adds useful and needed information on a subject whose literature is never adequate; and it is an example of the useful type of work that technical society committees can do. This particular committee of the Construction Division of the American Society of Civil Engineers was manned by knowledgable construction men—Maxton is with Raymond Concrete Pile Co., Babb with the U. S. Bureau of Reclamation and Leitch with Mount Morris Dam Builders—and they in turn consulted with many other cost sources.

As the name implies, the book is concerned with methods of cost control—procedures in which the average contractor is far from proficient. Basically it is an accounting manual showing by text, tables and charts how construction costs are kept, classified, and distributed in the various books of account. Specimen forms are shown and there are chapters on financing and taxes.

Beyond its obvious utility to contractors—both large and small—the book should prove especially useful to the increasing number of colleges which have organized courses in construction engineering and management.

Engineering drawing

ENGINEERING GRAPHICS—By John T. Rule and Earle F. Watts. 298 pp. McGraw-Hill Book Co., New York, Toronto and London. $3.75.

The authors claim that this text presents a new approach to engineering drawing. Ordinary drawing courses, they say, emphasize the representational side of graphics, the making of pictures to convey to others the ideas of the engineer. In contrast, the modern graphics course should develop the basic theories of both the analytical and representational sides of graphics, they contend. It should concern itself with the power to understand and use without allowing itself to be dom-

(*Continued on p. 51*)

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(Continued from p. 48)
inated by conventional details and standard practices, which can easily be acquired in special fields.

The authors say that their theory has had successful classroom experience at Massachusetts Institute of Technology. Throughout the book, in accordance with their philosophy, they stress underlying theory. Principles of projection, pictorial drawing, dimensioning and the construction of working drawings are introduced in simple examples. Specialized shop practices, symbols, and other drawing details are reduced to a minimum.

The book contains chapters on conic sections, roulettes, glissettes, spirals, vector geometry, empirical curves, periodic curves and graphical calculus. These are intended to supplement and make more understandable the corresponding topics in courses in analytical geometry and calculus.

The theory is intriguing. By reducing graphics to basic principles, can the course in engineering drawing be shortened? If so, can the same philosophy be applied to other subjects, thus making it possible to shorten engineering courses?

Notes on Pamphlets, Reprints and Educational Films

ALL CURRENT STANDARDS of the American Concrete Institute except the Detailing Manual are contained in "ACI Standards-1951." Copies can be obtained from the institute at 18263 W. McNichols Road, Detroit 19, for $3.00 ($1.75 to members).

GENERAL PROVISIONS for highway construction contracts that have been approved by the American Association of State Highway Officials are contained in a pamphlet entitled "Specifications for General Provisions." Copies can be obtained from the association at 917 National Press Building, Washington 4, D. C., for $2.

HOUSING RESEARCH inaugurated by the Housing and Home Finance Agency last year is described briefly in "Housing Research: Capsule Descriptions of Projects Started Under Contract in 1950." This pamphlet can be obtained from the Superintendent of Documents, Washington 25, D. C., 30¢.

A NEW APPROACH to concrete mix design is presented and documented in a 120-page report entitled, "The Law of Grading for Concrete Aggregates." The author, L. Boyd Mercer, chief engineer of Ready Mixed Concrete, Ltd., 401 Collins St., Melbourne (C-1), Australia, is well known in concrete research circles both at home and abroad. The "law" that is discussed states that "the grading of concrete aggregates is important only in so far as it affects segregation and placeability of the concrete. Thus grading presents a factor in the relationship between water-cement ratio, paste-aggregate ratio, and the variable requirements of field handling, but provided the mix is thoroughly compacted has no further influence upon the compression strength and other desirable properties of the hardened concrete." Limited number of copies of the report are available from the author.

FRENCH ROADS—A special supplement to the July 1951 issue of the magazine Travaux entitled "La Route" reviews highway practice in that country. Containing about 200 pages it may be purchased from Editions Science et Industrie, 6 Ave. Pierre Premiere de Serbie, Paris, France, for 650 francs

DAM DICTIONARY—For those who have need to know how such dam terms as "spillway," "valve," "concrete mixer" or "form panels" are referred to in French, German or British English, this new dictionary is an indispensable item. It has been compiled by a committee of the International Commission on Large Dams (Glennon Gilboy and George R. Clemens, American members) and contains more than a thousand terms. Entitled, "Dictionnaire Technique des Barrages" it is available from the U. S. Committee on Large Dams, 4316 Van Buren St., University Park, Hyattsville, Md., for $3.00.

BUILDING a million new housing units in 1952 would require 2% of the nation's annual production of steel, 7% of the copper and 1½% of the aluminum, according to "An Analysis of Housing Material Requirements," Part I, just published by the National Association of Home Builders, 1028 Connecticut Ave., N. W., Washington 6, D. C. The booklet presents estimates based on "the experience of the home building industry, with substantial reliance on the housing characteristics as developed to date in the Housing and Home Finance Agency's survey of approximately 30,000 dwelling units insured by the FHA." According to the author, the average dwelling built in 1950 contained 1,000 sq ft of floor area; 64% of the houses had no basement and 88% were one-story high. About 72% had exterior walls of frame construction, 11% of masonry and 10% of masonry veneer. Close to 69% had wood windows, 23% steel and 8% aluminum. Nearly 80% had warm-air heating, 11% hot-water and 9% some other type. Also, the average unit required 2.44 tons of steel and iron, 299 lb of copper and 47 lb of aluminum, and involved 1,420 man-hours of labor.

New Engineering Books

THEORY OF PERFECTLY PLASTIC SOLIDS—By William Prager and Philip G. Hodge, Jr. 204 pp. John Wiley & Sons, New York; Chapman & Hall, London. $5.50.

APPLIED MECHANICS FOR ENGINEERS—By Sir Charles Inglis. 404 pp. Cambridge University Press, London, and 51 Madison Ave, New York 10. $7.50.

IRRIGATION ENGINEERING—Vol. I—Agricultural and Hydrological Phases—By Ivan E. Houk. 545 pp. John Wiley & Sons, New York; Chapman & Hall, London. $9.00.

THEORY OF ELASTICITY—By S Timoshenko and J. N. Goodier. 506 pp McGraw-Hill Book Company, New York 18, N. Y. Toronto and London. $9.50.

CLEAR WRITING FOR EASY READING—By Norman G. Shidle. 176 pp. McGraw-Hill Book Company, Inc. New York 18, Toronto and London. $3.00.

NOMOGRAPHIC CHARTS—By C. Albert Kulmann. 244 pp. McGraw-Hill Book Co. New York 18, Toronto and London. $6.50.

MEMPHIS AND ARKANSAS HIGHWAY BRIDGE OVER THE MISSISSIPPI RIVER—Final Report. Modjeski & Masters, Consulting Engineers, Harrisburg, Pa. Privately Printed.

A REFERENCE HANDBOOK For Construction Engineers, Architects, Builders Superintendents Of Construction, and Building Construction Foremen—By H. G. Richey. 1639 pp. H. G. Richey, 1328 North Rendon St., New Orleans, La. $10.00.

MATHEMATICS FOR ENGINEERS—By Raymond Dull and Richard Dull. 822 pp. McGraw-Hill Book Company, Inc. New York 18, Toronto and London. $7.50.

SOIL MECHANICS, FOUNDATIONS, AND EARTH STRUCTURES—An Introduction To The Theory And Practice Of Design And Construction—By Gregory P. Tschebotarioff. 655 pp. McGraw-Hill Book Company, Inc. New York 18, Toronto and London. $6.50.

Fly ash: still an industrial waste

UNTIL THE DAY—and it is coming—when fly ash finds full favor in its many beneficial uses, this product of pulverized coal combustion will remain for most producers and the engineers who design for them what it is today—a waste disposal problem.

Hungry Horse Dam in Montana will cost about $1¼-million less, because the Bureau of Reclamation substituted fly ash for 30% of the cement it would normally have used (ENR June 22, 1950, p 39). Commonwealth Edison, Chicago, was paid about a dollar a ton to supply it. But this is the exception. For most private and public utilities fly ash still represents a major pollution abatement cost—to the tune of about 70 cents a ton.

• **Here to stay**—The problem evolved this way: First there were only cinders—readily disposed of as fill material. Then came powdered coal, its combustion product a light, fine particle low in carbon content—easily carried up the stack to an accommodating atmosphere.

Next came smoke controls, which during the past ten years or so have made precipitators standard equipment for trapping fly ash in the flues by mechanical or electrostatic means. Putting the trapped particles in water made them easy to handle—but turned an air pollutant into a stream pollutant.

And that brought the stream pollution control agencies into the picture. They would tolerate no settleable solids in their water courses—and very little liking even for those suspended.

Where pollution control laws have teeth, utilities not wanting to be bit are spending considerable money today to build settling basins for fly ash disposal.

If there is space, the basin for use at a new steam power plant is a sizable pond, maybe ten acres in area. Designers want them built to last at least five years, ten where possible.

• **Build a better basin?**—A spot check of major electric utilities by ENR indicates nothing startling in fly ash settling basins. Power stations on river banks build their basins to dimensions dictated by property holdings and topography.

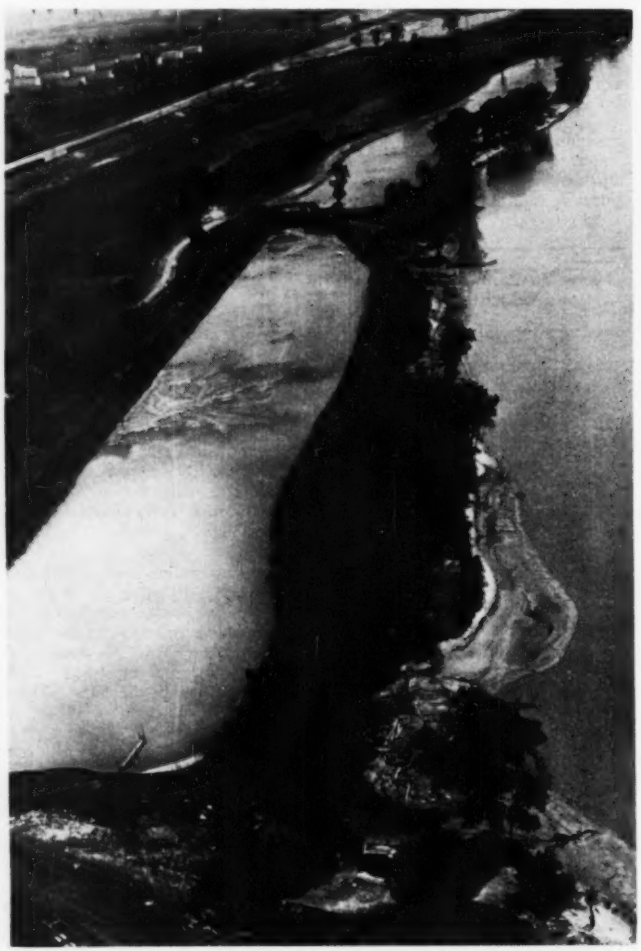
Take American Gas & Electric Service Corp., for example. Designing plants for its power-producing affiliates in a seven-state area, it is alert to the serious public-relations problem of air and water pollution. In all new plants of the system, precipitators are standard equipment. And AG&E includes complete drawings of settling-pond facilities in its designs.

For Ohio Power Co.'s Muskingum River Plant, AG&E Service Corp. has prescribed a "yard" suitable to receive 840,000 cu yd of flyash—a quantity two generating units will take ten years to produce.

Cinders, kept separate because there is a ready market for them now, will be put in a 420,000-cu yd basin—good for five years.

AG&E uses all the fly ash it can in concrete construction of its own. A deal with a cement company enables AG&E to have 20% fly ash ground in with cement at the mill. But, so far, it sees no big orders for the material in quantity. So settling basins for disposal will continue to be part of new designs.

• **Typical of many**—A representative basin is a low piece of land alongside the plant with an earth dike thrown up around it. The dike might be a



TODAY—Most fly ash producers must design for disposal of the stuff—generally in expansive—and expensive—settling basins like these.

15-ft high embankment put up by dragline and bulldozer to enclose an area 200 x 2,000 ft. A 10 to 20-ft top width and 1:2 side slopes suffice for normal embankment material.

Fly ash-and-water slurry is pumped or fed by gravity to the basin through steel or cast iron pipe which soon develops a coating of ash on its inside that protects it from abrasion. Slurry velocity of 6 to 8 fps keeps the 10% (by volume) ash from settling in the line. Basin inlets are usually put at one end of the basin, with outlets—generally clay pipe or concrete overflow structures—at the opposite end nearest to the drainage channel. Effluent is extremely clear.

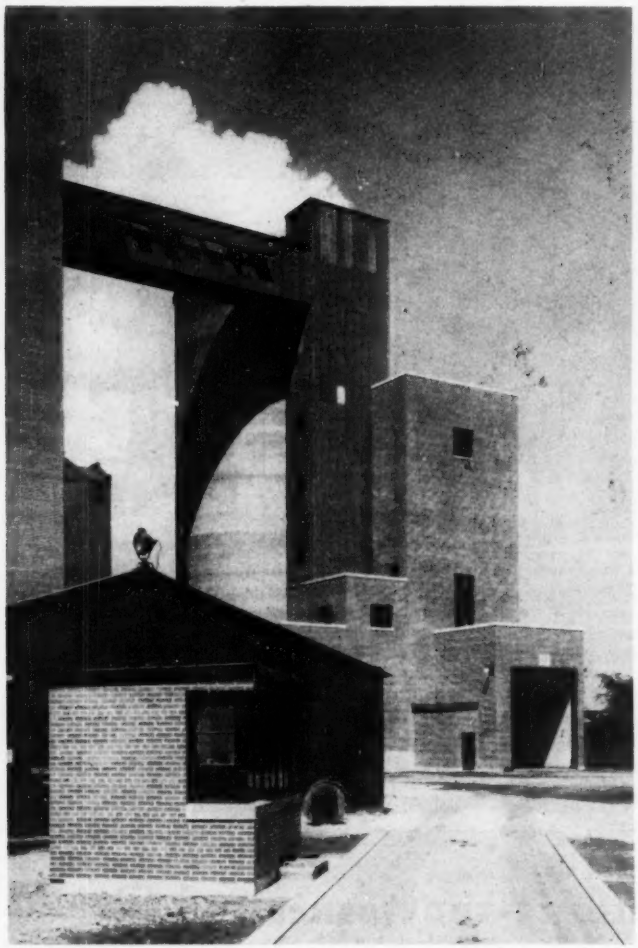
Effluent works may be fixed concrete box structures 4 or 5 ft square, with their crests at an elevation near the top of the dike. One side of the box is constructed of concrete planks that can be installed as required to maintain a proper water level in the settling pool. A sectional pipe riser may also be installed. Adding lengths to this as the fill rises makes it possible to keep spillway crest a reasonable height above fill and to discharge effluent without completely filling the basin with water.

• **Fill methods**—Union Electric Co. of Missouri finds advantage in using 200 x 1,000-ft basins in pairs, filling them simultaneously. Then, when a basin is full to a 15-ft depth, a second dike is constructed on top of the first, set back on a 6 to 8-ft berm. And a second 15-ft layer is placed. (So far, 30 ft has not been exceeded by Union Electric).

A typical pool gains about an inch a day from the burning of 3,000 to 4,000 tons of coal. Depth of water for settling in the basin is kept at 6 to 12 in. by using the extensable type effluent pipe.

Filled basins get a 10 to 18-in. soil cover and vegetation where there is danger of them being cut up by traffic to become dust nuisances.

Fly ash fill cements to a firm mass in the basins, but it does not reconsolidate if broken up. Its load-bearing capacity (undisturbed) is about the same as that of alluvial soil—one to two tons per square foot of area. Fly ash fills have been accepted as levees around St. Louis by the Corps of Engineers.



TOMORROW—More fly ash producers should be building silos and handling facilities for profitable marketing of the material.

• **For sale**—Where there's a market, fly ash storage, not disposal, is the problem. The market has to be good enough to cover fixed and operating costs of extra handling and loading for shipment. Where the market is spotty, disposal as well as storage space may be needed.

Detroit Edison Co. successfully markets fly ash for concrete products and mineral asphalt filler. (Another large use, promising to reach 300,000 tons a year, is for sealing oil-well casings). The ash is pneumatically transported from precipitators to silos that hold 1,500 to 2,200 tons. Graded at the silo, it is either dry-loaded into railroad hopper cars and tank trucks or wet down for hauling away in open trucks or cars.

This company gets about $2 per ton at the plant for fly ash in bulk; nearly $7 per ton if the fly ash is bagged for shipment.

• **The crux**—Economics of fly ash marketing hinge heavily on freight rates. A suitable shipping charge made the Chicago-to-Hungry-Horse deal feasible. But future constructive use of the now wasted material will depend largely on what rail rates are fixed for fly ash.

One way to beat the freight rates entirely may be in increased local use of the material.

If, for instance, lime-fly ash compositions for highway paving were to find extensixe use, there would be a local market for nearly all producers. Mid-Atlantic utilities have financed research begun about six years that aims to exploit fully fly ash in pavements. In fact, there's a demonstration street in Baltimore laid recently to prove the pavement's worth.

Fly ash in bags—$7-per-ton income. Fly ash in basins—70-cents-per-ton expenditure. Time should deal with the discrepancy.

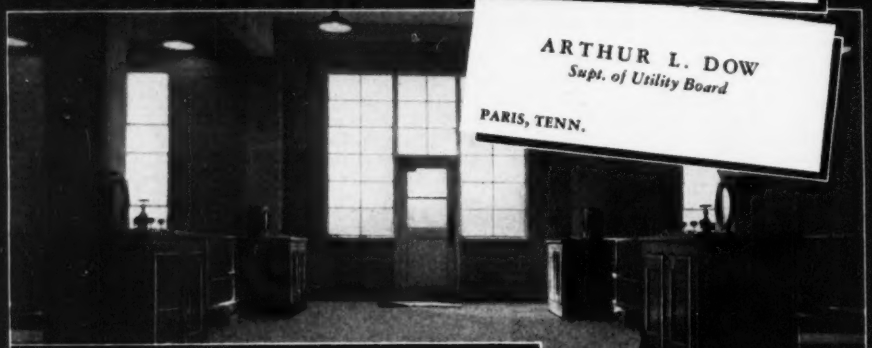
PARIS, TENN.

Filter Plant

(COMPLETED IN 1949)

ALLEN & HOSHALL
Consulting Engineers
MEMPHIS, TENN.

ARTHUR L. DOW
Supt. of Utility Board
PARIS, TENN.



Builders Equipment furnished for the Paris Filter Plant:

6" Model RCA Hydraulically-Operated Controllers for Filter Effluent.

Loss of Head and Rate of Flow Indicating Filter Gauges, Model GAB-I.

12" Orifice Meter for Backwash Rate.

Filter Operating Tables, Model FTPV.

Prior to the construction of this new plant, the water works for the city of Paris, Tenn., was of inadequate capacity and was also incapable of treating the water properly. Raw water, drawn from supply wells, passed through a settling basin, but sedimentation alone was not enough to remove concentrated iron floc. So much floc went out into the system that frequent flushing of mains was required.

Today, Paris can boast of a modern Filter Plant, the complete solution to these water supply deficiencies. Instead of being limited to a maximum capacity of ¼ MGD, the 13,000 population is now assured of an adequate supply . . . up to 2 MGD. By employing filtration methods, the plant now delivers a finished water of controlled purity and low iron content. Builders Meters, Controllers, Gauges, and Operating Tables, installed by the contractors, W. C. Hailey & Co. of Nashville, Tenn., assist the plant engineer in maintaining an adequate and uniform flow of water through the settling basins and rapid sand filters to satisfy daily water demands. A backwash rate indicator helps to keep filters operating efficiently.

For Bulletins describing Builders Water Works Equipment, address Builders-Providence, Inc. (Division of Builders Iron Foundry), Providence 1, Rhode Island.

B-I-F INDUSTRIES

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BUILDERS

Not, PLEASE, In the Name of Fairness

Our national Office of Economic Stabilization has adopted a policy of gearing wages to the cost of living. We are told that "escalator clauses," which provide that rates of pay shall be adjusted to take account of changes in the cost of living, will be generally approved.

If the adoption of this policy had been announced as a frank concession to political expediency, it would have been quite understandable. There may very well be votes, lots of them, in a policy which purports to protect the income of a large group against loss through the price inflation caused by the defense program.

A case might even have been made for a policy of approving escalator clauses on grounds of production expediency. The leaders of some three million organized workers now covered by such clauses have indicated that they would fight to the limit to keep them and thus maintain "real wages," that is, wages measured by their purchasing power. The leaders of other organized groups have indicated they would fight to get the benefit of such clauses. Denial of them might mean serious strikes.

Justified "in Fairness"

However, the policy of approving escalator clauses was not based on these relatively low grounds of expediency. It was justified on high moral grounds, on grounds of "fairness." In the words of the President's Council of Economic Advisers, "maintenance of real wages during inflation cannot in fairness be disallowed."

That proposition is false.

It would be truthful to say, "maintenance of real wages during inflation cannot in fairness be allowed."

The truth of the corrected proposition becomes evident immediately when you take a look at the basic nature of the inflationary problem created by defense mobilization.

We are devoting a large share of our national production to defense. The share is now scheduled to hit about 20% in 1952.

Since we are not able to increase our total production fast enough to meet defense needs

in addition to civilian needs, that means a cut in the supply of goods and services that is available for civilian consumption. But the money paid out for the production of defense materials is added to that which is available to buy civilian goods.

Thus, more money is put into the hands of the people to buy less goods. So prices go up. That is inflation.

If one group of people then is granted enough additional money to offset the price increases — and that is the purpose of an escalator clause — and thus can continue to buy as much as they have been buying right along, less goods will be left for other consumers who are not getting this advantage. That is palpably an unfair distribution of the sacrifices necessitated by defense mobilization. In fairness, therefore, maintenance of real wages in inflation cannot be allowed.

Organized workers were not the first, of course, to get the benefit of an automatic adjustment to take account of the increased cost of living. The farmers got theirs first. The price parity formula is, in essence, an escalator clause. The federal government underwrites increases in the prices of the things farmers sell in order to match increases in the prices of the things they buy.

Crucifying the Helpless

As matters stand, two groups are without benefit of escalator clauses. One group is composed of manufacturing firms. While they have not been nearly as successful as the misleading reports of "record-breaking profits" suggest, they have been able to look after themselves fairly well — thus far.

But one group is completely without protection. It is that numerically large but politically unorganized mass of people — many of them old and relatively helpless — who are trying to live on pensions, annuities and other fixed incomes derived from their savings. They are at the end of the line when the increased costs of inflation are passed along. They have no one to whom they can pass the buck. They are being progressively pauperized by the continuing inflation caused by progressive boosting of costs and hence prices.

With the present line-up of pressure groups in Washington, protection for the principal victims of inflation — those who have saved for a rainy day only to find inflation has blown away the roof — is obviously an extremely difficult business. But to have even temporary insulation against inflation granted to powerful groups in the name of fairness should be offensive to the nostrils of a nation that presumes to assert the moral leadership of the Western World.

The only really fair way to handle inflation is to prevent it. But once it is under way, fairness demands that the burdens be as evenly distributed as practicable.

An escalator clause — or a farm parity provision — is explicitly a device to enable the group favored by it to escape the burden of inflation. Whatever concessions we feel we must make to political pressures or production expediency, let us at least be honest enough not to invoke "fairness" as justification for so arbitrary a discrimination in the distribution of the defense burden.

McGraw-Hill Publishing Co., Inc.

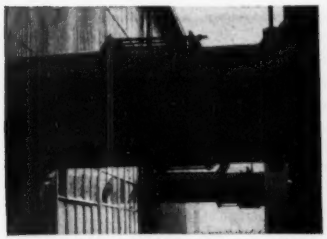
Delays don't go

on Defense construction

Vital construction today must move rapidly. Pipelines have to go in quickly—must be dependable. Dresser Couplings make your fastest, surest pipeline installation—whether it's a temporary line for construction purposes or a permanent line that must serve for years and years.

These factory-made pipe joints require only a wrench to install. Any laborer can do the job and do it right. Dressers make "flexible-tight" joints that remain tight despite vibration and expansion-contraction stresses that would open rigid or caulked lines. Suitable for gas, air, oil, gasoline, water and other lines. Mail the coupon below for information and engineering reports on recent Dresser Coupling installations.

This Dresser-Coupled line supplies gas to a Detroit steel mill . . . dramatically illustrates the rugged service expected and received with Dresser Couplings. Heavy vibration from railroad tracks on both sides and over line, is harmlessly absorbed by Dresser gaskets and the line stays permanently "flexible-tight."



Ability to withstand vibration is important here. Dresser Couplings stay tight on exhaust lines of 2400-h.p. engines at a pumping station in the southwest.

In close quarters, dependable connections are easily made with Dresser Couplings. Many engineers say they are "the only practical pipe joint" in crowded locations.

Dresser Couplings are extremely useful for temporary construction lines. Lines may be disassembled and moved with virtually 100% salvage—especially important in times of shortages.

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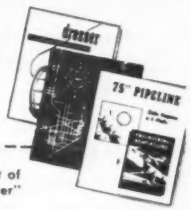
Interesting engineering data on varied types of lines installed with Dresser Couplings. This is file material.



Gentlemen: Please send me your "Report of Dresser-Coupled Lines," your "Bridge River" reprint, and "Style 38" Catalog.

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Built to dissipate high intensity noise and curb low frequency pressure waves generated by "hot" ram-jet engine tests, this giant acoustical building was an addition to an existing supersonic wind tunnel at the Lewis Flight Propulsion Laboratory of the National Advisory Committee for Aeronautics, Cleveland, Ohio. The new acoustical house is 50 feet high, 33 feet wide and 190 feet long. Forms for the honeycomb of resonator-type ducts were built by placing ⅝" PlyForm concrete form panels across 2x6 studs, backed by 2x6 wales. After each use, forms were stripped, re-oiled and erected into position for next pour. Contractor was The Hunkin-Conkey Construction Company, Cleveland, Ohio.

Plywood Speeds Formwork By 15 Per Cent...

as giant wind tunnel silencer is rushed to completion

"It was a hurry-up contract with a penalty clause," explains H. F. Hadde, chief engineer for The Hunkin-Conky Construction Company, contractors for the giant reinforced concrete silencer built at Lewis Flight Propulsion Laboratory of the National Advisory Committee for Aeronautics, Cleveland, Ohio.

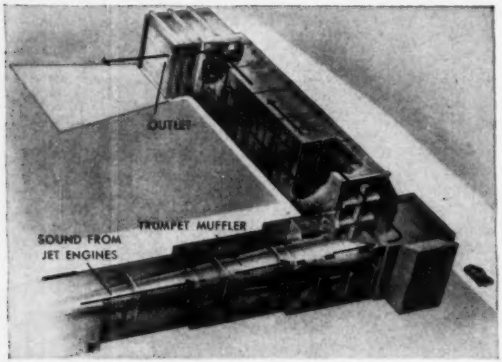
"Douglas fir plywood concrete form panels, specified for ease of handling and for the smooth concrete surfaces required, helped get the job done fast, too. Plywood speeded formwork application time by 15 per cent."

Here is just one more example of a fact well known to architects, engineers and contractors: easy-to-fabricate Douglas fir plywood concrete forms go up faster, strip easier, last longer—and provide concrete surfaces that are smooth, fin-free and simpler to finish with a minimum of labor.

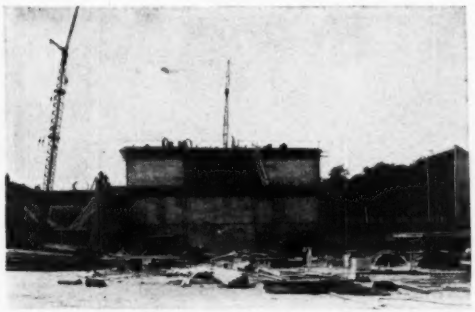
Douglas Fir Plywood

AMERICA'S

Smooth Plywood-Formed Inner Walls Help Increase Operating Efficiency



Artist's vizualization above shows layout of the complete unit. Sound from engine enters the original trumpet muffler, which screens out most low-frequency waves. A system of concrete baffles and duct mufflers in the new acoustical building stop low and medium frequency vibrations. Here, smooth concrete surfaces were required; roughness would cause a greater pressure drop in air flow and require more power to pass through the ducts. To obtain this required smoothness on the inside—and for attractive exterior appearance, too—the contractor used forms of Douglas fir plywood. Below: construction view of project, showing forms in place.



Large, Light, Strong Real Wood Panels

For additional data on Douglas fir plywood for concrete form work, write (USA only): Douglas Fir Plywood Association, Tacoma 2, Washington. Of particular interest are two booklets: "Concrete Forms of Douglas Fir Plywood" and "Handling PlyForm".

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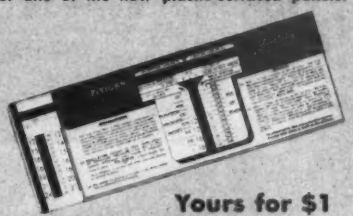

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INTERNATIONAL INTERNATIONAL **TRUCKS**

"Standard of the Highway

READER COMMENT

Better bridge lighting

Sir: My observations throughout the country have convinced me that bridge lighting is not receiving the attention in relation to the aesthetic development of the locality as is the structure itself. In fact I have seen many structures which had a great amount of aesthetic appeal and which were certainly functional, but which were changed in the reaction extended to the observer by the installation of lighting, which bore no relation whatever to the design of the structure itself.

For many years we have been endeavoring to cooperate with the illuminating engineer prior to establishment of the plans. My own contacts convince me that illuminating engineers are extremely competent in their own specialities. Unfortunately these men are not called in until a project is constructed in the field, then an installation is established to produce maximum lumens on the surface of the highway, with minimum cost to the supports to accomplish this purpose. The result is not pleasing to the eye. This is particularly true since the major portion of the time that a bridge is observed by the public is during daylight hours. Certainly there should not be a detrimental appearance produced in the structure during daylight hours by the installation of lighting facilities which are established in the first place to increase the safety in the usage of the structure during the darker portion of the day.

LIGHTING STANDARD developed for Corning bridge

We have been progressing with some small degree of success. We recently completed the design and construction of a bridge at Corning, New York. During the progress of the design we had contact with illuminating engineers. We are convinced that the wobbly looking slender gooseneck lighting standard that is frequently used is not conducive to aesthetic appearance. We made an attempt to establish a lighting standard in keeping with the design of the railing. We are fully aware of the fact that as a matter of theory the illuminating unit may not produce as many lumens on the roadway as if mounted on the gooseneck extension but the lighting results are satisfactory. The standards which we have used are spaced at about 120 ft intervals opposite one another across the roadway. They are 14 ft 2 in. high from the top of the curb to the center of the light source. This is considerably lower than the standards developed by the illuminating engineers.

Those who use the Corning Bridge are pleased with its appearance. These same users are equally pleased with the safety value of the structure during the night hours. This would seem to be most convincing evidence that results can be obtained without detracting in any way from the appearance of the structure.

My purpose in communicating with you is because my continued observation of structures, which are generally designated as major structures, seems to indicate that in all too many instances lighting is a secondary consideration in so far as the appearance of the bridge is concerned during daylight hours.

Certainly it is not considered good judgment for us to struggle with functional simplicity and pleasing lines and then destroy all of this effort through our lack of foresight in designing lighting standards. Surely these standards do not need to be ornate, neither do they need to be slender pipes projecting almost indefinitely into the air with no ratio of diameter of support to height of support.

We recognize that a bridge as an architectural expression passes through space, but we also recognize that the human eye can take no comfort in following the transition if it becomes restless when presented with lighting standards which have no relation to the structure itself.

E. W. WENDELL
Deputy Chief Engineer
Department of Public Works
State of New York
Albany, N. Y.

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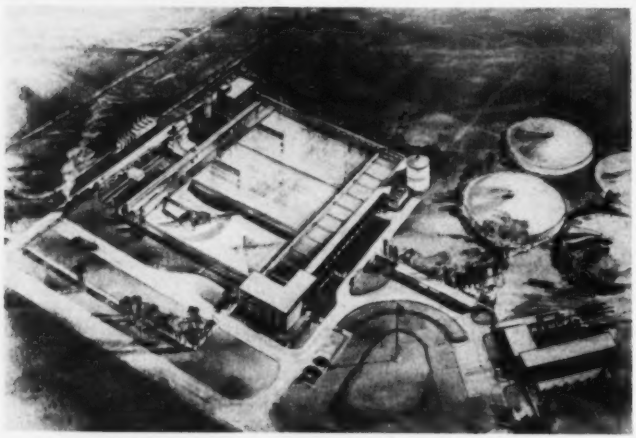


DESIGNS NEAR READY—Soon to come off the drawing boards, are complete plans for the above-pictured waterworks. Its layout takes full advantage of the fact that little protection against severe weather is needed.

Houston plans an open-air waterworks

Design of San Jacinto River water supply project to supply Houston, Texas, with 50 mgd of additional water will be completed in December. Then, a year and a half to two years will be required for construction. The purification plant will be built on an 82-acre site near Galena Park on the eastern edge of the city. Freeze, Nichols & Turner, of Houston, are the engineers.

The plant will adapt industrial type design developed for mild Gulf Coast climate—only the chemical house, operating gallery, laboratory and administration building fully enclosed. Open-air filters will be immediately adjacent to the settling basins, making flow of water through the plant a straight line through flocculators, settling basins and filters. This permits substantial reduction in cost of piping and valves.

• **Plant layout**—In the upper left of the accompanying illustration is shown the terminus of the canal from the reservoir. Pumping stations on it will deliver raw water to the treatment works as well as to industrial plants along the Houston Ship Channel. Between the canal and treatment basins are the chemical house and chemical storage silos, the chlorine storage and handling equipment, and the railroad trackage necessary to serve the plant.

Three treatment basins provide 45 min of flocculation and 3¼ hours of settling at the maximum-day plant capacity of 80 mg. Separating the filters from the settling basins is the equalizing and transfer channel, and beneath it the wash-water sewer, both being integral parts of the concrete structure. The operating gallery is the full width of the plant and terminates in the foreground in the administration building and laboratory, which is to be sufficient for an ultimate plant capacity of 200 mgd. Additions to the plant will be made in increments of 50 mgd arranged in parallel units similar to the initial installation. Sufficient land is available.

Treated water storage reservoirs (right) will be 5 mg steel tanks located above ground. Filtered water will be pumped from the far end of the filter gallery. Wash water storage is also located at this point.

In right foreground is located the distribution pump station and the main power substation for the plant.

Estimated construction cost of the purification plant and industrial water pump station, with structures for a capacity of 50 mgd—but with installed equipment for 33⅓ mgd capacity—is $4,475,400.

Two underground garages proposed for Los Angeles

A survey to determine the feasibility of constructing two underground garages in the Los Angeles civic center has been launched by City Engineer Lloyd Aldrich at the direction of the Board of Public Works. The underground structures could double as bomb shelters.

Each of the garages would be larger than the 1,600-car $5,000,000 Pershing Square garage now under construction. They would be built on property adjacent to two sites selected for the city's Health Department and Police Facilities buildings. Financing of the projects would be done in a manner similar to the Pershing Square unit by leasing the property to private interests which would build and operate the garages.

Sites for the two buildings have been cleared, but high costs of construction have delayed their erection.

Toledo to offer citizens an understandable budget

Following the example of large corporations and banks, Toledo, Ohio, is planning to publish a clear-cut "performance budget" to inform taxpayers of what the city is doing and how much it costs. The 1952 budget will tell what work and services are to be performed, and what it will cost. The new budget system will also give taxpayers an opportunity to learn the effects of inflation on costs.

The new type of budget is expected to answer the following questions:

Is the budget adequate for community needs, or as adequate as funds will permit?

Is there proper balance between the various services, especially between the more and less essential ones?

Do the work programs assure adequate results and proper standards of service?

Is the budget plan economical, not in terms of dollar slashing, but in terms of what the dollar is buying?

Boston advised to use multiple incinerators

At an ultimate cost of about $3,000,000, Boston, Mass., has been advised to burn garbage and other refuse in incinerator installations which would virtually eliminate all dumping on land as at present practiced.

Commissioner of Public Works George G. Hyland has transmitted to Mayor Hynes a report of 80 pages on this matter prepared by Hyland and the engineering firm of Thomas Worcester, Inc., Boston. It is estimated that the city would save more than $274,000 a year by adopting modern incinerator methods, and that in some locations steam and electric power might be developed in that way for municipal institutional use.

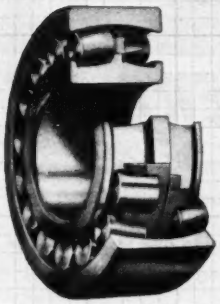
The report analyzes four incinerator unit possibilities. The largest would be located in the southern part of the

(Continued on page 65)

"Caterpillar" Diesel Tractors develop

more workpower from horsepower

. . . through Torrington Bearings



In the constant mesh transmissions of "Caterpillar" D6, D7 and D8 Tractors, Torrington Spherical Roller Bearings are used to provide larger load capacity and smoother flow of power from the engine to the tracks.

On the upper transmission shafts of the D6, D7 and D8, and on the pinion shaft of the D8, these self-aligning bearings automatically compensate for possible shaft deflections—binding stresses cannot develop.

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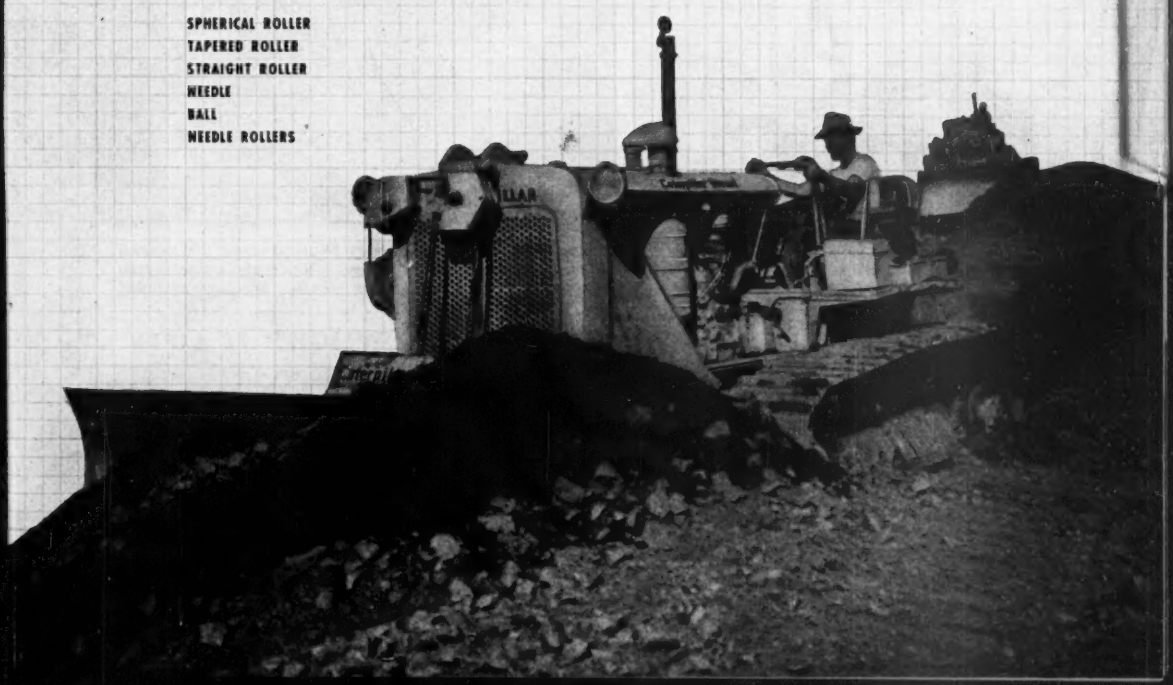

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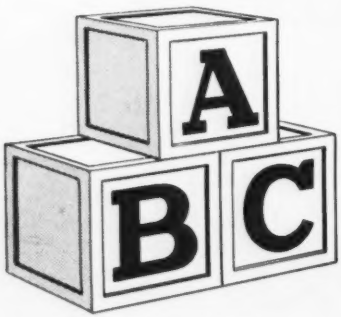
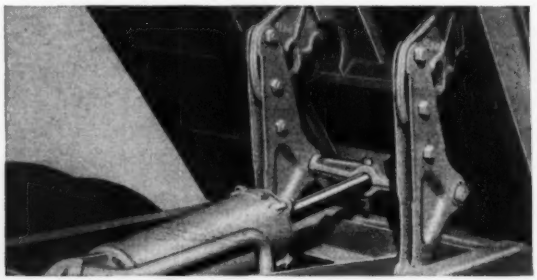
Through experience countless dump truck operators have found that Galion equipment performs better . . . lasts longer and has chassis saving qualities as well.

And that's easy to understand . . . for Galion successfully unites an exclusive Fulcrumatic lift ACTION with perfect operating BALANCE and top quality CONSTRUCTION resulting in dump truck performance so smooth . . . so reliable . . . so efficient as to earn for it the stamp of leadership . . . "User Preferred".





Scientifically positioned fulcrums and transfer linkages automatically "shift" the load at different points, eliminating lift-shock and smoothing out lifting action throughout the dumping cycle. The result is longer hoist, body and chassis life . . . better dumping performance!

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A exclusive hoist *Action*
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Municipal . . . .

city near the Boston City Hospital, and would have a capacity of 750 tons, its estimated cost being $1,650,000. A second would be built in the Brighton district at a cost of $704,000 unless the Metropolitan District Commission should provide a unit for that section and adjacent communities. Another installation is suggested for the Dorchester section of Boston with an alternative of building a plant in West Roxbury. The Dorchester job would have two units costing $1,210,000 and if the West Roxbury installation were favored instead, its cost would be $770,000. Temporarily the Dorchester and West Roxbury plans can be held in abeyance on account of the adequacy of existing land dumps.

Municipal Briefs

• **Water softening**—Dayton, Ohio, has broken ground for a 96-mgd water softening and filtration plant. The new treatment works will cost $4,200,000—most ever spent by the city for a single project. Completion is due in 1953. S. N. Nielsen, Chicago, holds the construction contract. E. B. Evans, newly appointed superintendent of the plant, will supervise construction for the Department of Water. Dayton gets water from 172 wells, supplying 300,000 people through 485 miles of pipe.

• **Municipal parking idea**—The Philadelphia Merchants Association has agreed to underwrite and guarantee a revolving fund credit of $150,000 for the city's parking authority. Members include department stores and other concerns in the central business area. Albert M. Greenfield, president of the Chamber of Commerce of Philadelphia said the credit will serve as part of the collateral for a loan. The money will be used to develop off-street parking facilities downtown. The parking authority said the revolving fund enabled it to obtain a $450,000 loan from the Fidelity-Philadelphia Trust Co. in order to acquire title to a 29,500-sq. ft. lot at 19th and Walnut streets. The balance of the purchase price of $700,000 was paid by the authority from funds advanced to it under two separate loans of city council.

Meanwhile in Washington, D. C., four groups representing automobile associations and merchants have joined in asking the district to help provide off-street facilities in downtown Washington. J. M. Saunders, of the Washington Automotive Trade

(*Continued on page 66*)

"in a class by itself"

the Shone® Pneumatic Ejector

for pumping liquids containing solids *where gallonage is limited but solids are not*

In the handling of all fluids containing solids, as gallonage scales down a point is inevitably reached where the openings of an appropriately sized centrifugal pump are too small to pass the solids.

That problem has an effective answer—a simple, fool-proof answer known throughout the world: the Shone Pneumatic Ejector. As illustrated, the Shone consists of a sealed chamber in which the liquid is collected, to be forced out by compressed air (or steam) admitted into the chamber automatically. Its natural field is for handling smaller flows—gallonages as low as 30 GPM; and especially where uninterrupted operation is imperative.

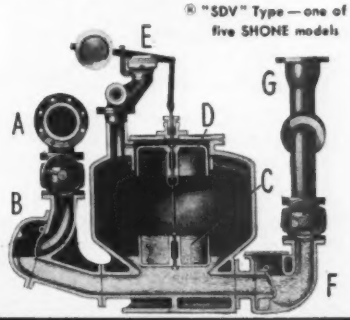
These exclusive features prove why the Shone is "in a class by itself":

- No screen or impeller
- No air-tight sheet-metal floats or float switches
- No grounds caused by condensation in wiring conduit and switch enclosures
- Minimum of attention required
- Can be operated from remote compressor—any number of ejectors from a single compressor plant
- Special designs for annual requirements

NEW SHONE BULLETIN—contains sizes and dimensions, and much helpful information relating to use and installation. Use the coupon.

® "SDV" Type—one of five SHONE models

A Inlet pipe
B Inlet Check Valve
C Lower Bell
D Upper Bell
E Pilot Slide Valve
F Discharge Check Valve
G Discharge Pipe



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PUMPS FOR BUILDINGS, MUNICIPALITIES, INDUSTRIAL APPLICATIONS—and a complete line of Sewage and Waste Treatment Equipment

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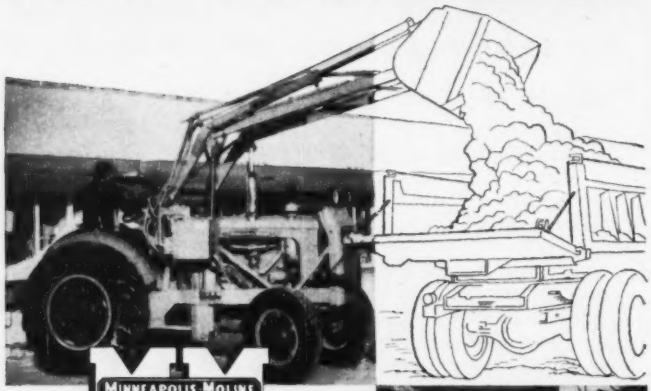
FORECAST:

COLDER with SNOW



MINNEAPOLIS-MOLINE
MM
MODERN MACHINERY

INDUSTRIAL WHEELERS

Model UTIL, 6 forward and 6 reverse speeds, quickly and easily loads snow with a 3 cu. yd. snow bucket.

Model RTI with all-weather cab and V-type plow clears snow blocked roads and streets.

Model RTI with hydraulic drive sweeper cleans up loose snow, right to the pavement.

MM Industrial Wheelers are *just right* for tough snow removal jobs. No matter what *your* snow problem, there's an MM Wheeler and the "right" attachments to do the job—and to keep operators busy all year.

Front end loaders with up to 3 cu. yd. snow buckets keep a fleet of trucks loaded and on the move. They increase the capacity of all equipment. *Rotary broom sweepers* eliminate ice hazards by complete removal of up to 24 inches of fresh snow from walks and drives.

V-type or reversible angle plows on high-speed MM Wheelers open drift-blocked roads with no time lost between jobs.

High-capacity snow removal attachments and enclosed comfort cabs make MM Industrial Wheelers ideal for fighting snow in *all* weather conditions. See your nearest MM representative for complete information on these "easiest steering" wheelers in 27 and 51 h.p. sizes. Ask about the 6 speed "Shuttle Gear" and instant shifting.

MM Quality Control means Dependable Performance on the Job.

MINNEAPOLIS-MOLINE
MINNEAPOLIS 1, MINNESOTA

Municipal . . . .

Association, asked the commissioners to: Set up a city department "charged with the responsibility of getting more parking," and to seek funds with which to buy land for private operators for parking garages; start acquiring land now on which parking garages could be built; and use receipts from city parking meters to help buy land and, if necessary, build garages. Net receipts from parking meters are about $250,000 a year.

• **Repaving Buffalo**—A boom in the resurfacing and repaving of streets is on at Buffalo, N. Y., trolley tracks and cobblestones are disappearing, the chuck holes and craters are covered and indications are that the Department of Public Works will complete more square yards of street rehabilitation this year than at any time in the city's history. For the first time in more than 25 years, the rate of street reconstruction is greater than annual deterioration, according to Commissioner Frederick W. Crane. Given good weather, there is every reason to believe that the street crews will eclipse the previous record of 615,000 sq yds. of repaving and reconstruction accomplished in 1924.

• **New angle on water-saving**—Santa Ana, Calif., has asked its residents to use less water, but not because of scarcity. City Engineer Hugh Neighbor warned householders because residential sewer lines are overloaded. Rapid population growth has taxed old sewer lines so that they have overflowed during peaks. The city engineer sees reduction of water dumped into the sewers as the only immediate solution. Industrial users have already cooperated in cutting sewer use as much as possible in response to a request from the city engineer.

• **New sewers for Detroit**—The common council of Detroit, Mich., is to authorize a $9,000,000 bond issue for immediate construction of East Side sewers. A severe storm on July 22 brought complaints of so many flooded cellars that plans for this section had to be stepped up. The new Blue Hill pumping station, built at a cost of $1,500,000, failed to cope with the very unusual flood. One pump at the station broke down. Added overload came from Fox Creek, Grosse Pointe, and placed a heavy burden, not anticipated, on the Blue Hill station. A $45,000,000-program to handle the flood waters in Detroit was mapped out years ago but the cost of the projects planned has jumped to $67,000,000 and this money is not available.

Raymond conquers chubascos...in

THE WORLD'S MOST UNUSUAL SOIL BORING JOB

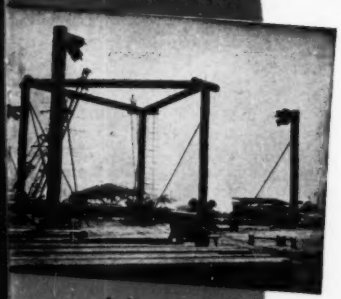
FOR VENEZUELAN OIL CONCESSIONS, LTD.,

1. Construction of pipe frame float 30' high, 80' long on each side of the triangle.

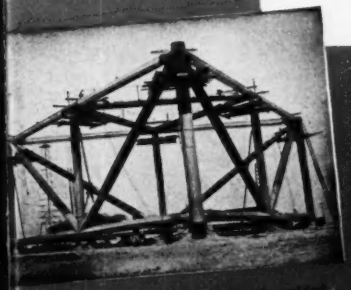
The Problem: 250-foot Gow soil borings, accurately spotted five to ten miles offshore in the deep waters of Lake Maracaibo, Venezuela. The Project: pile foundations for future oil-well derricks. Special Hazard: 70-mile-an-hour "chubascos," violent squalls that would wreck temporary platforms.

The Solution: Raymond engineers designed a triangular *floating* platform of 22" steel pipe, welded and watertight. The three corner members were left open for 120-foot-long anchor spuds. Assembled on shore from steelwork fabricated in New York, the 60-ton float was skidded onto two barges and towed 32 miles to the first boring location where floating derricks launched it. Spuds and deck equipment were placed later, including winch-controlled anchors at each corner to help in spotting the float and holding it steady during boring operations.

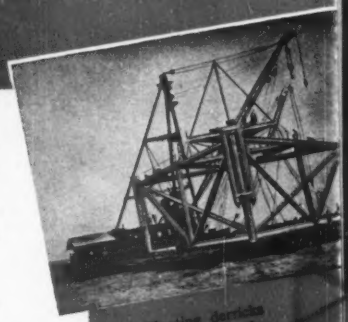
The Moral: When the problem is tough, the answer must still be *right*. That's when it pays to have a resourceful, experienced organization on the job . . . like Raymond!



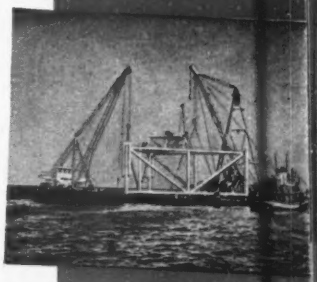
2. Closer view of the starting framework, showing 22" diameter steel pipe being used.



3. Completed framework, welded and watertight except for the corner verticals, which will accommodate anchor spuds.



4. Floating derricks preparing to lift the float from barges and place it in the water.



5. Launching the 60-ton float. Note work platform erected 10 feet above framework.

6. Float in position for Gow boring operations, anchored by the 120' spuds and cables at each corner.

Raymond

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THE SCOPE OF RAYMOND'S ACTIVITIES . . . includes every recognized type of foundation construction—concrete, composite, precast, steel, pipe and wood piles. Also caissons; underpinning; construction involving shore protection, shipbuilding facilities, and harbor and river improvements; borings for soil investigation; and cement mortar lining of oil and water pipe lines 6" to 144" in diameter by the Centrilining Corporation, a Raymond subsidiary.

STOP booming up and down to spot bucket loads!

Place your clamshell QUICK over the EXACT spot where you want to dump the load, without a man there to guide it! Turn, spin, snub or cast your bucket directly from the cab!

GET THE TOPS IN BUCKET CONTROL

"Tag Master"

No—you don't need a man to spot the bucket when you use the TAG MASTER. With the TAG MASTER you put 'er right down in any spot or corner, or lower through waling and bracing on a trench job—right from the cab! No delay. No danger.

The TAG MASTER tag-line pull is uniform at all bucket levels and adjustable to fit any job. In addition, you can use your TAG MASTER as a dipper trip.

For more details of this combination tagline winder and dipper trip, just mail the coupon below.

MORIN MFG. CO., INC.
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Send "TAG-MASTER" details to—

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FOREIGN

TO BE INUNDATED—This pleasing valley of the Eucumbene River eventually will be hidden under the waters of the river when backed up by the new Adaminaby Dam, part of Australia's great Snowy Mountains hydro-electric scheme.—Eastern Pubs. photo

Australia has many power projects under way or under consideration

The need for more hydroelectric power is the outstanding feature of Australian economic and industrial planning at the present time.

Among the current plans of the powers that be "down under" are these:

• **Snowy Mountains**—The Snowy Mountains Hydroelectric Authority is examining bids from the world's major contractors for construction of the Guthega Dam, the first in a chain of similar projects planned for the next quarter of a century. It will take several months to examine the tenders because of the unusual nature of the specifications on which they are based. The authority has furnished the contractors with only hydrographic, geological, topographical and similar data and has stated power output expected, but it has been left to the bidders to submit their own design proposals.

The passing of the Australian Snowy Mountains Hydro-Electric Power Act in July, 1949, launched a developmental scheme that will impound for irrigation purposes five times as much water (2,250,000 ac ft) as is contained in Sydney Harbor, and will generate slightly more power (2,750,000 kw.) than the Tennessee Valley Authority projects. The vast scheme, which will trap the melting snow of the Koscuisko area of the Australian Alps, will entail the diversion of some of the flow of the Snowy River into the Murray River, and the diversion of water from the Eucumbene River into the Murrumbidgee River; the building of seven major dams, 16 power stations, many of them hundreds of feet underground; 84 miles of undermountain tunnels up to 34 ft. in diameter; miles of mountain roads and 500 miles of race lines to divert melting snows into the main channels. Two existing townships will be inundated in the dammed waters, and many subsidiary towns will be constructed to accommodate the armies of workers. The whole work, to cost 220,000,000 English pounds, will take 25 years to complete.

• **Tully Falls project**—The biggest power scheme in the state of Queensland is the Tully Falls project about 80 miles south of Cairns in the far north. The Tully River runs through the areas of heaviest rainfall in Australia before plunging over its 100-ft falls. A storage reservoir—the Koombooloomba Dam—about eight miles above the falls, will have a storage capacity of 146,000 ac ft.

The main power station will be on the south bank of the Tully, about two miles from the falls. Water to operate the station will flow into a diversion weir about a quarter of a mile upstream from the falls. A 2,500 ft concrete-lined tunnel will carry the water to the station's penstocks. Plant for this first station will consist of four turbine-driven generators, each of

(Continued on page 70)

Announcing
CONNORS IMPROVED REINFORCING BAR TO MEET ASTM A-305 SPECIFICATIONS
● Soon to be in full production at CONNORS STEEL COMPANY is an improved concrete reinforcing bar meeting ASTM A-305 Specifications. Present production schedules at CONNORS indicate that the A-305 bar will be available by late Autumn.
Production of the improved reinforcing bar to meet ASTM A-305 specifications is in line with CONNORS' traditional policy of high quality steel products and reliable service. It is the latest step forward in CONNORS' expansion program to meet the needs of the rapidly growing South.
OTHER CONNORS PRODUCTS
• Merchant Bars
• Tobacco Hogshead Hoop
• Bulk Binder Strapping
• Fence Posts
• Highway Sign Posts
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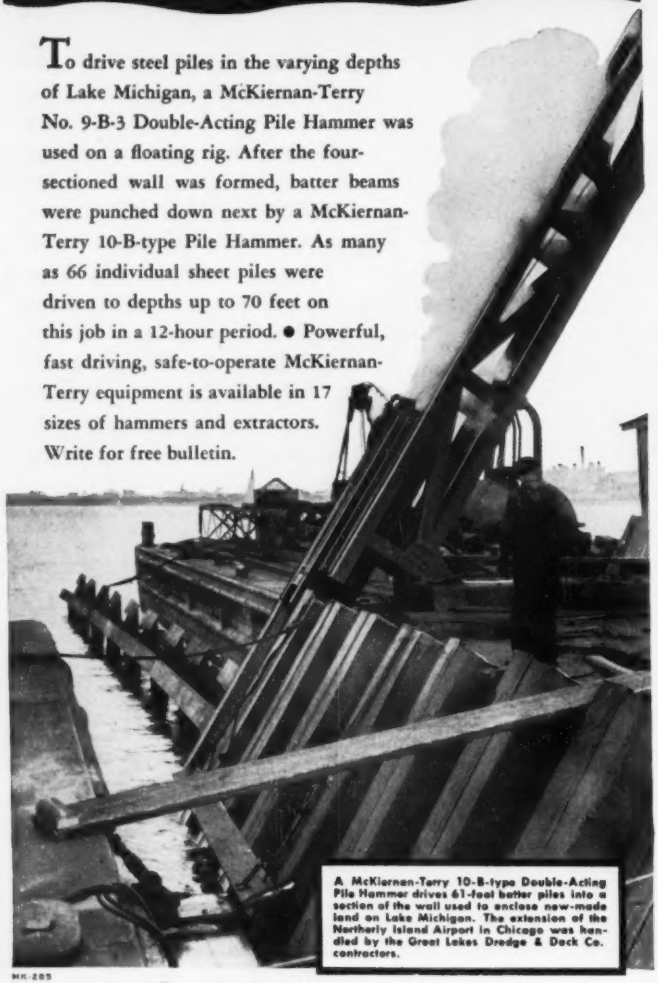
• Hot Rolled Strip
CONNORS STEEL COMPANY
Division of H. K. PORTER COMPANY, INC.
BIRMINGHAM, ALABAMA

Making Land in a Lake

WITH McKIERNAN-TERRY PILE HAMMERS

To drive steel piles in the varying depths of Lake Michigan, a McKiernan-Terry No. 9-B-3 Double-Acting Pile Hammer was used on a floating rig. After the four-sectioned wall was formed, batter beams were punched down next by a McKiernan-Terry 10-B-type Pile Hammer. As many as 66 individual sheet piles were driven to depths up to 70 feet on this job in a 12-hour period. ● Powerful, fast driving, safe-to-operate McKiernan-Terry equipment is available in 17 sizes of hammers and extractors. Write for free bulletin.



A McKiernan-Terry 10-B-type Double-Acting Pile Hammer drives 61-foot batter piles into a section of the wall used to enclose new-made land on Lake Michigan. The extension of the Northerly Island Airport in Chicago was handled by the Great Lakes Dredge & Dock Co. contractors.

MK-285

COAL TOWERS

TRANSFER BRIDGES

HONING TO 42" I. D.

GRAB BUCKETS

McKIERNAN TERRY

McKIERNAN-TERRY CORPORATION
Manufacturing Engineers
13 Park Row, New York 38, N. Y.
Plants: Harrison, N. J. and Dover, N. J.

Foreign . . . .

18,000 kw capacity, together with auxiliary plant and equipment.

• **Eildon Dam**—Work on the Great Eildon Dam in Victoria was opened officially on June 15 last. The $25,000,000 contract was awarded last year to the Utah Construction Co. of San Francisco, Calif. The job is to be finished in September, 1955. The 13,000,000 cu yd earth structure and the 750 billion gal. storage behind it will be Australia's largest. Already the American contractor has assembled more than $3,000,000 worth of construction equipment at Eildon.

The Victorian Electricity Commission is planning to spend $120,000,000 in a year to overcome serious power and fuel shortage and to provide more power for urgent defense needs.

• **Tasmania to double power**—As part of a 4-year plan to double the hydroelectric capacity of Tasmania, Australia's island state, the local power commission has started work on two major projects.

One project, known as Tungatinah Power Development, calls for construction of seven dams to bring practically the entire runoff from the island's central plateau under control. The first and biggest dam, a concrete gravity structure, will be built on the Nive River to divert it to a chain of lakes on the plateau. The dam will be 600 ft high and 94 ft wide at the base. It will be known as Pine Tier Dam.

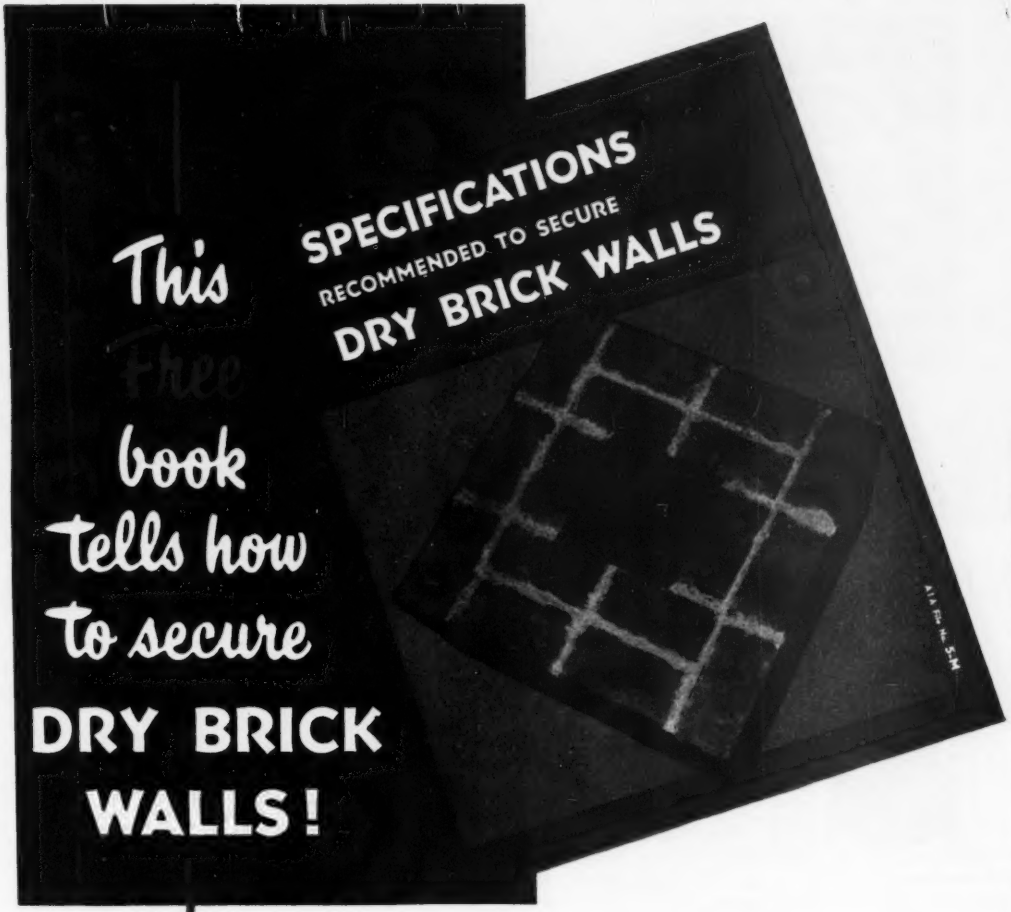
A concrete flume 11,450 ft long, 25 ft wide and 10 ft 10 in. deep will convey the water to the lakes. Additional dams will increase the water intake of the lake chain and prevent uncontrolled runoff. An unlined outlet tunnel from Nive Marsh Lake, the last in the chain, will convey the water to a power station at Tarraleah. The tunnel will be 16 ft 6 in. in diameter and 2,698 ft long. The power station will have four and later five vertical Francis turbines each rated 35,000 hp.

Recent items on Australian water supply and power are to be found in ENGINEERING NEWS-RECORD May '50, p. 50; October 19, '50, p. 59; Dec. 7, '50, p. 66; and July 19, '51, p. 48.

British make a record at rock-tunneling

A new British rock-tunneling record was set up during a recent week by Edmund Nuttall, Sons & Co. of London, when tunnelers, working 8-hour shifts around the clock for seven days, drove a distance of 427 ft through hard diorite rock forming the mountains of the Cobbler Range in Scotland.

(*Continued on page 72*)



Now the Louisville Cement Company has published another outstanding booklet, entitled *Specifications Recommended to Secure Dry Brick Walls.* This important pamphlet briefly interprets the exhaustive research carried on by many national authorities during the past twenty years. In 16 clearly-illustrated pages it describes the causes of leaky brick walls, explains how these causes may be avoided, and offers detailed specifications for the types of mortar, brick and workmanship required to secure dry brick walls.

This booklet is a sequel to *Type of Workmanship Recommended to Secure Dry Brick Walls,* a pamphlet which has been accepted by leading authorities as one of the most valuable works ever published on its subject. It is a 1951 Award Winner in the Class I competition sponsored jointly by the American Institute of Architects and the Producers' Council. It is used as a textbook in 232 colleges, high schools and trade schools.

Send for your free copy of this highly informative and interesting booklet, *today.* The coupon is for your convenience.

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Gentlemen: Without cost or obligation, please send me a copy of *Specifications Recommended to Secure Dry Brick Walls.*

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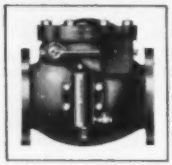
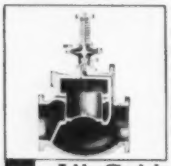
For minimum maintenance and greater all-around dependability USE GOLDEN-ANDERSON *Cushioned* STEAM AND WATER AUTOMATIC VALVES

G-A Triple-Acting Non-Return Valve for safety needed on high pressure boilers. Bulletin S-1A sent on request.

G-A Surge Relief Valve protects water lines against excessive pressures caused by surges in the system. Bulletin W-2 describes this valve in detail.



G-A Swing Check Valve for air, water or liquids allows full pipe line flow with minimum pressure drop. Provided with adjustable air cushioning. Bulletin W-1 will interest you.



G-A Altitude Control Valve maintains uniform water level control in tanks, reservoirs, etc. Bulletin W-4 sent on request.

All Golden-Anderson Valves are designed with the patented special double cushioning feature to prevent hammer or shock. *May we cooperate with you on your pressure control problem?*

GOLDEN ANDERSON
Valve Specialty Company
2094 KEENAN BLDG. · PITTSBURGH 22, PA.

Foreign . . .

FOR U. N. GENERAL ASSEMBLY—From the Eiffel Tower, temporary buildings are seen under construction in preparation for the United Nations General Assembly session which will open early in November in Paris. The buildings are in a U-shape on three sides of the fountains in front of the Palais de Chaillot.—Wide World Photo.

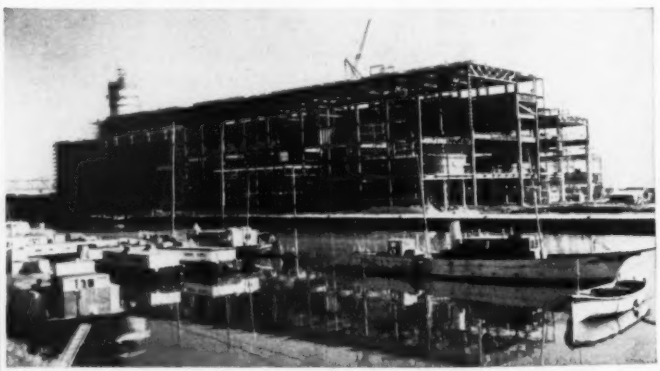
Over a period of 31 working days, a total footage of 1,231 was achieved, this being the "best ever" figure recorded in Great Britain, possibly in Europe. The tunnel, approximately 7 ft square, eventually will be some 6,000 ft long and will carry water from above the Rest-and-be-Thankful Summit to the Loch Sloy Reservoir to increase the catchment to the Loch Sloy North of Scotland Hydro-Electric Board scheme.

During the week some 66 rounds were fired and cleaned out. The rock-drilling equipment consists of light jack hammer drills mounted on "air legs" with tungsten-carbide drilling rods.

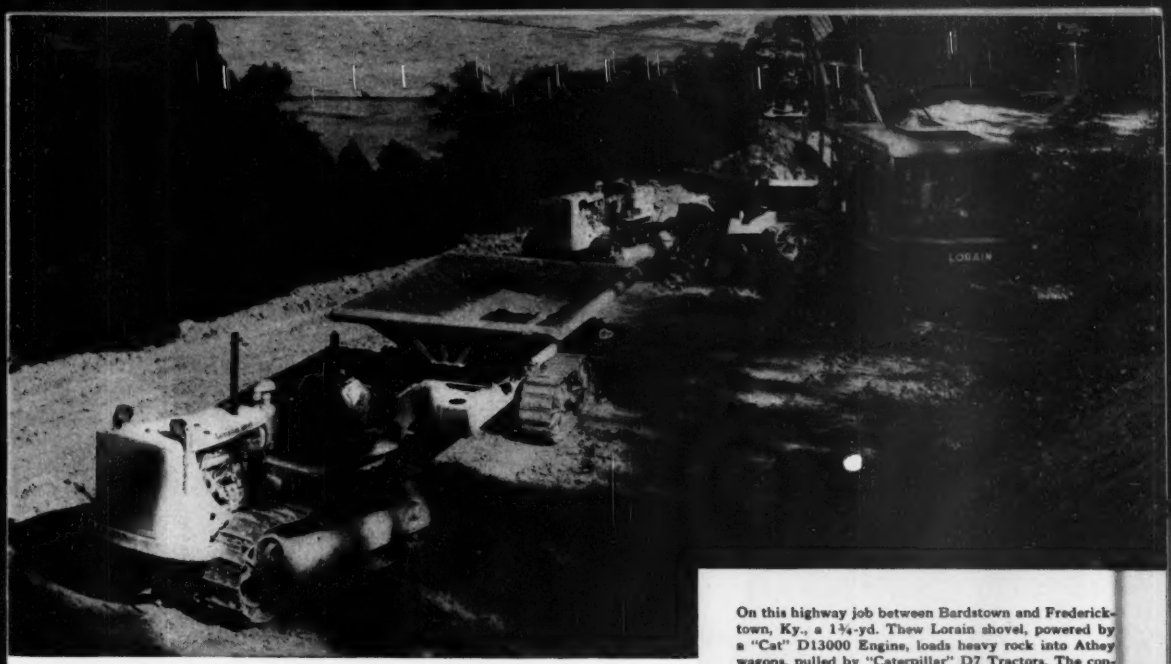
Consulting engineers for this project are James Williamson & Partners of Glasgow.

The previous tunneling record (reported on May 7, 1951) of 334 ft in one week was achieved on May 6 by the Cementation Company Ltd., of

(*Continued on page 77*)



GIANT POWER STATION—The Brighton "B" electric power station at Shoreham, Sussex, England, takes shape. It is on a strip of land between the English Channel and Shoreham Canal. The plant will be 900 x 300 ft., will cost $42,000,000, and will be capable of producing 315,000 kw. It is one of four new nearby power stations being developed to full capacity. The east chimney shown in construction will be 350 ft high. An appurtenant improvement is the enlargement of Shoreham Harbor to allow colliers to discharge coal directly to the station.—Eastern Pub. Photo.



On this highway job between Bardstown and Fredericktown, Ky., a 1¾-yd. Thew Lorain shovel, powered by a "Cat" D13000 Engine, loads heavy rock into Athey wagons, pulled by "Caterpillar" D7 Tractors. The contractor is W. C. Snyder, Danville, Ky.

There's a big job ahead

How your equipment stands up in the months ahead has a real bearing on America's fight to be strong and stay free. A vital part of that effort is the $12,000,000,000 worth of earthmoving and road building needed this year. And we're entering a period that will separate "the men from the boys" in the field of construction machinery.

Military needs and Defense Rated Orders are taking their share of "Caterpillar" production. Shortages of steel and other materials add to the difficulty of supplying the demand for new machines. This means that *present equipment must be kept in use.*

"Cat" Diesel Engines, Tractors, Motor Graders and Earthmoving Equipment are built with the stamina to serve you long and faithfully. But *how* long is up to you and the operation and maintenance you give them. Good care pays off.

You can add many hours to equipment life if you follow sound maintenance practices. Anticipate your parts needs *before* wear goes beyond repair. Talk it over with your "Caterpillar" dealer. He is qualified to give competent opinion. If a part is not readily available, he has the tools and knowledge to rebuild many worn parts — and keep your machinery on the job.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

You're the Doctor

Don't let your engine overheat. Maintain the cooling system, keeping it free of scale, rust and sediment. Use soft or treated water and, when freezing temperatures exist, protect your engine with anti-freeze. Clean the radiator periodically, removing foreign matter from the core by brushing or washing. Use chemical flushing solutions. Prevent engine troubles which come with overheating. Consult your Operator's Instruction Book.

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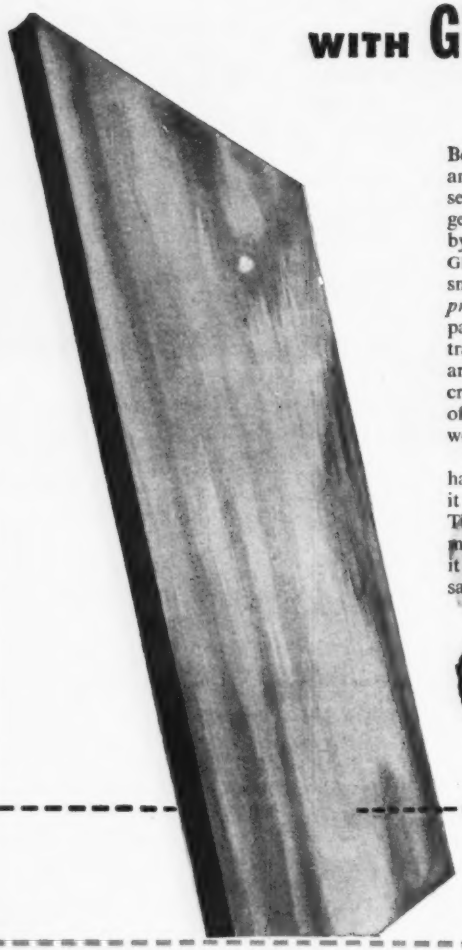
Smoother Finish... Lower Cost!

WITH GPX PLASTIC-FACED PLYWOOD USED IN CONCRETE FORMS



Before GPX, a builder had to grind and point ceilings and THEN apply several layers of plaster in order to get a smooth, finished surface. NOW, by pouring concrete into forms of GPX, the resultant surface is so smooth that, *with a minimum of preparation*, the ceiling can be painted without plastering. Contractors and builders everywhere are finding that the smoother concrete surfaces produced by the use of GPX Concrete Forms save time, work and money.

The inherently smooth, armor-hard plastic surface of GPX gives it unbelievable wearing qualities. The number of re-uses is determined solely by the care with which it is handled and the cutting necessary for pipes and other openings. GPX Concrete Forms, if handled with reasonable care, can be used literally scores of times.

GPX is an extremely high-grade exterior Douglas Fir Plywood with a superior plastic overlay applied under heat and pressure at the time the plywood is being bonded. RESULT: the plastic flows, condenses and sets, forming a hard plastic surface that has become *a part of the plywood itself.*

Investigate GPX today! It is a quality product of Georgia-Pacific Plywood Company, with practically unlimited application for building, in industry and on the farm. For descriptive literature and other information, write on your firm letterhead or fill in and mail the coupon:

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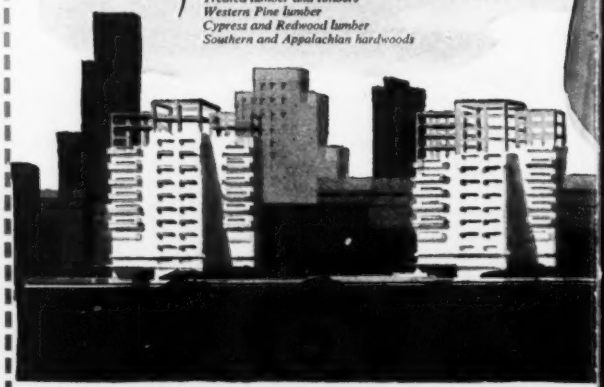
Long leaf and short leaf Pine lumber and timbers
Treated lumber and timbers
Western Pine lumber
Cypress and Redwood lumber
Southern and Appalachian hardwoods



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609 North Capitol Way
Olympia, Washington

Please send me information on your plastic-faced plywood, GPX.

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FIRM NAME.....

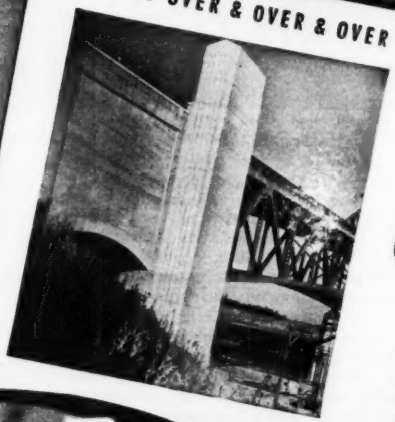
FIRM ADDRESS.....

YOUR POSITION.....

Investigate GPX for all construction jobs!

GPX, Georgia-Pacific's miracle plywood with the plastic face that is part of the plywood itself, is working production miracles in building and construction. Its unique properties include: a satin-smooth, armor-hard surface, extra strength and long life under adverse conditions.

USE IT OVER & OVER & OVER



GPX IS ABRASION-RESISTANT

GPX's armor-hard surface resists the wear and abrasion of concrete mixtures of cement, sand and gravel; the scuffing wear in chutes and other uses where thousands of articles are passed along it constantly.

GPX IS WEATHERPROOF

GPX's inherent qualities resist the most adverse conditions of climate and weather to give long, efficient life, no matter where it is used.

GPX IS WATER-RESISTANT

GPX withstands even tropical rains, humidity and all the extremes of moisture, heat and condensation.

GPX IS DURABLE

GPX lasts and lasts long after ordinary materials have checked and cracked and need to be repaired or replaced. GPX's plastic surface combined with high grade exterior type Douglas Fir Plywood is one of the finest building materials available today.

Now...Dallas Park Cities *are pumping with Economy!*

Portion of main pump room, Park Cities Water Treatment Project. Shown are 13 of the 22 Economy Pumps installed on this project.

View in University Park Booster Station, part of the Park Cities project. These Economy Pumps boost the pressure going to the overhead storage tank, located 5 miles from the treatment plant.

in new Park Cities, Texas, Water Treatment Plant

Economical operation over a period of years was a primary requisite of the pumps for Park Cities Water Treatment Project, Dallas. In selecting pumps, Powell & Powell, Consulting Engineers, drew up specifications which took into consideration cost of equipment, efficiency of each unit and efficiency of units operating in series, plus rigid structural requirements and refinements of mechanical detail. Under this very exacting evaluation formula, Economy Pumps, designed especially for water works service, supplied by the Lone Star Pump and Machinery Co., were selected, on the Dallas County project.

It pays to specify Economy Pumps for water supply. For detailed information and illustrated catalogs write today to Dept. CB-9.

Economy Pumps, Inc.

DIVISION OF HAMILTON-THOMAS CORP., HAMILTON, OHIO

Foreign . . .

Doncaster in work being carried out on the Bowland Forest tunnel, which is part of the Haweswater Acqueduct scheme of the Manchester Corp.

Foreign briefs

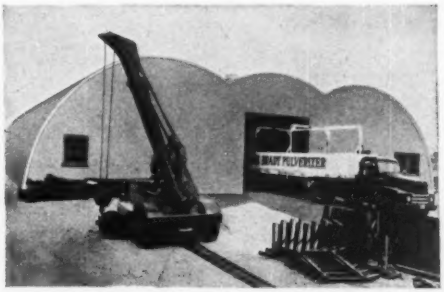
• **Western European progress**—The industrial production of Western Europe has hit a new all-time peak of 44 percent above prewar output, ECA Administrator Wm. C. Foster has announced. At the same time he reported that Marshall Plan purchase approvals issued for 17 Western European countries during the fiscal year 1951 totaled $2,161,900,000—a drop of nearly 40 percent from the 1950 fiscal year total which was $3,592,090,000.

• **Pre-mix concrete plant**—Brazil's first pre-mix concrete plant has gone into production at Sao Paulo, using U. S. equipment throughout. The company, Usina Central de Concreto S.A. was organized by the engineering firm of Tavares & Pinheiro Ltda. All the equipment was supplied by The Kochring Co., Milwaukee, Wis. Part was fabricated by C. S. Johnson Co., Kochring Co. subsidiary. The conveyor belt system was manufactured by Barber-Greene Co., Aurora, Ill. The plant has a designed capacity of 50 cubic meters of mix per hour. Delivery is by a fleet of 10-ton Ford, International and White trucks, mounting 3.3 cubic meter transit mixers supplied by Rex and Ransome.

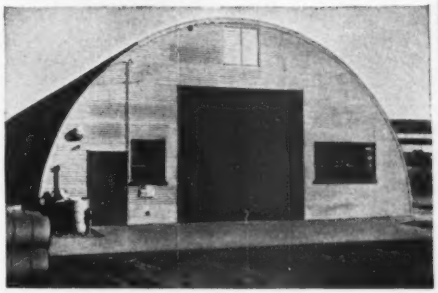
• **Submarine electric cable**—Difficulties in conveying electric power by high-voltage submarine cable across Cook Strait may bring about an investigation into the economics of connecting the two main islands of New Zealand by a tunnel and laying the cables through it. This suggestion is made by M. G. Latta, chief engineer of the dominion's Hydroelectric Department. While most of New Zealand's coal and hydroelectric resources are in the South Island, two-thirds of the population lives in the industrialized North Island. Transmission of power from the South Island across the 14-mile Cook Strait has long been under consideration and surveys of the sea bottom and tidal currents have been in progress for some time. Some of the problems to which solutions must be found are due to the immense weight of the large-diameter, heavily protected cables. It would be difficult to locate, lift and repair them. Mr. Letta believes that an investigation might show that a tunnel under Cook Strait would be a more economic solution.

Quick construction plus lasting Quality . . .

Quonsets meet the needs of industry!



The Brady Manufacturing Co., *Des Moines, Iowa, was in urgent need of additional manufacturing space. In just* one work week *from the time the foundation was ready, this 80 x 100-foot Quonset was in use by the company.*



Cornell-Dubilier Electric Corp., *South Plainfield, N. J., has been able to expand its activities speedily and economically with Quonset 40 buildings. This 40 x 200 Quonset took only* 19 days *to erect, including insulation, lining, and utility installation.*

TODAY'S industrial needs for additional space are *immediate* needs—for today's production is moving into high gear. Time spent in waiting for new construction is time lost from productive output.

That's why Quonsets are the ideal answer to the nation's need for fast expansion of warehouse and manufacturing facilities. They go up quickly—in *days* instead of *months*. Framed of N-A-X HIGH-TENSILE steel, Quonsets are *permanent*, durable, non-combustible buildings requiring little upkeep.

A Quonset building is usually completed and occupied in less time than it takes to do the preliminary work on ordinary structures. Let Quonsets save you time and money. Write us today.

STRAN-STEEL FRAMING

GREAT LAKES STEEL CORPORATION

Stran-Steel Division • Ecorse, Detroit 29, Michigan

NATIONAL STEEL CORPORATION

Big Red TD 24

ANOTHER BIG BITE is dumped by the shovel and Big Red goes into action, grading the dirt down the hillside to carve out a workbench for the shovel. Teamwork is essential when shovel and tractor work together. And you always want Big Red on your team.

INTERNATIONAL

INTERNATIONAL HARVESTER

POWER THAT PAYS

Takes a Big Bite!

How International's Big Red Champ... the TD-24... Tackles 40 Feet of Solid Earth and Rock

Bring on your big tough jobs! Mass up the earth and rock. Then pass the word for "Big Red"—International's Champion of crawlers.

In the heart of the West Virginia mountains, Joe Troitino is stripping more than forty feet of earth and rock overburden to bare a rich four-foot seam of coal.

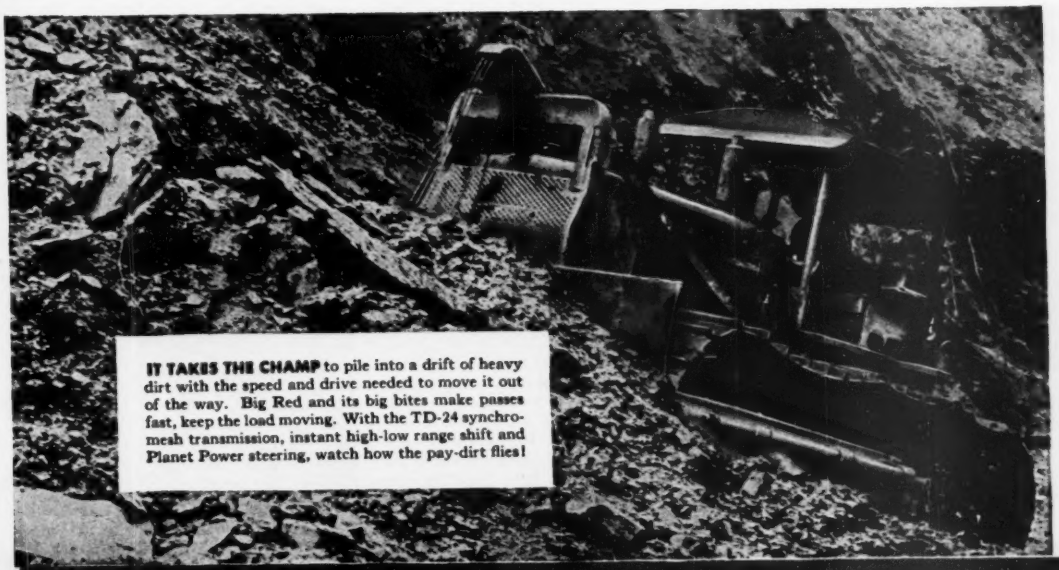
With the Big Red Champ on the job, Troitino strips about 450 tons of coal a day, and it's only one of his three coal stripping jobs!

"My company now owns six International TD-24s," says Troitino. "We think it is the best tractor on the market—and we have used all sorts of them under all kinds of conditions!

"Of course, I like the International TD-24 because it is easy to run, but, above everything else, we like it because it is more economical to operate than any other tractor we have ever used and because there is no rock or earthmoving job too tough for it."

The word is out. On the more rugged jobs, contractors who know crawlers are telling each other about the power and smooth action of the Big Red TD-24. Get the real low-down from your International Industrial Distributor. Ask him to show you Big Red in action—you'll be a TD-24 man from then on in!

International Harvester Company, Chicago 1, Illinois



IT TAKES THE CHAMP to pile into a drift of heavy dirt with the speed and drive needed to move it out of the way. Big Red and its big bites make passes fast, keep the load moving. With the TD-24 synchro-mesh transmission, instant high-low range shift and Planet Power steering, watch how the pay-dirt flies!

MEN AND JOBS

A $29,444,000 BID—This is the scene when bids were opened by the Army Corps of Engineers at Sacramento, Calif., for the construction of Folsom Dam on the American River. The low bid of seven was a joint one by Merritt-Chapman & Scott Corp. of New York and the Savin Construction Corp. of East Hartford, Conn. The picture shows the contractors and their representatives grouped around the engineers' conference table as O. H. Hart, center, deputy chief of the Sacramento district operations division reads one of the bids. Standing at left back of him, is Col. C. C. Haug, Sacramento district engineer. About 340 ft high and more than two miles long, the dam will provide storage capacity for about 1,000,000 ac ft of water. Its main concrete section astride the river will be 1,400 ft long. It is estimated that construction of the dam will require approximately 9,609,000 cu yd of excavation and the placement of approximately 1,108,470 cu yd of concrete, plus about 8,834,000 cu yd of earth and rock fill for the wing dikes.

New appointments

State, city and county

Paul R. Capelle is right-of-way engineer for New Castle County, Del.

W. D. Hurst, city engineer, Winnipeg, Man., is chairman of the River and Streams Protection Authority, which supervises bank and channel work on the Red and Assiniboine rivers.

Karl Woditsch is now assistant to Service Director George Baker, Dayton, Ohio.

Dwight T. Myers is managing director of new off-street parking enterprises of Providence, R. I.

Oscar M. Fuller is superintendent of public works at Gaffney, S. C.

Government agencies

Fred J. Deem has been made project engineer for the Public Housing Authority on the construction of the Halifax Court Apartments, Raleigh, N. C.

Ralph W. Peters is secretary of Maumee Watershed Conservancy District, Ohio.

Consulting engineers

Geo. E. Symons is establishing a consulting service at New York on plant and laboratory design, research and operating problems in water, sewage and industrial waste treatment.

J. Paul Keen, formerly assistant engineer for Broome County, N. Y., has joined W. H. McFarland, a consulting engineer at Binghamton, N. Y.

Corps of Engineers

Four employees of the Walla Walla, Wash., district office have been transferred—**James E. Reeves,** chief of the engineering division, to the North Pacific division at Portland, Ore., succeeded by **Edwin C. Franzen,** with Franzen's former post as chief of the design branch going to **Otto R. Lunn,** who had been coordinator for McNary Dam.

Leo R. Buhr, chief of the operations division, transferred to the North Pacific division, succeeded by **William B. Watson,** with the Walla Walla office since 1948. **Raymond R. Garnett,** chief of the supervision and inspection branch, transferred to the Office of the Chief of Engineers, Washington, D. C., succeeded by **B. W. Hoare; Wm. J. McDonnal** to the Okinawa district, where he will be chief of the site planning branch for Army installations.

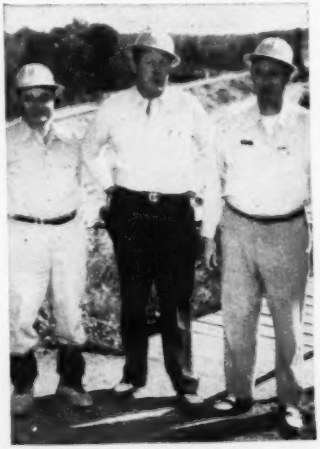
Industrial and Commercial

R. P. Westerhoff has been elected vice-president and director in charge of the engineering department of **Ford, Bacon & Davis Inc.,** New York, Chicago, Philadelphia and Los Angeles.

Maj. Wm. F. M. Longwell, U. S. Army, ret., late associate professor civil engineering, Worcester Polytechnic institute, has joined The Thompson &

(*Continued on page 82*)

E. G. Nielsen has been appointed assistant director of the Bureau of Reclamation's Region 3, after serving as regional planning engineer since 1945. He was graduated from the University of Iowa in 1926 in engineering. He worked as associate engineer at the Keokuk Hydroelectric Station on the Mississippi River, with the Stone and Webster Engineering Corp. in construction work at Bagnell Dam on Missouri's Osage River, and with the Missouri Public Service Commission.



Left to right, John J. Feira, general superintendent, and Delano C. Cannon, project engineer of Perini, Walsh, Mills & Blythe Bros. Construction Co., Jim Woodruff Dam, Chattahoochee, Fla.

Vernon County Commissioner likes Tournadozer maneuverability for snowplowing

Through all of last winter, Vernon County Highway Department, Viroqua, Wis., used their rubber-tired C Tournadozer for heavy-duty snowplowing. Its mobility, power to clear deep drifts, and 19 m.p.h. travel speeds from job-to-job were major factors in setting the following, typically high records of production:

1. Opening highways drifted 6 to 10 ft. deep, the powerful 186 h.p. Tournadozer cleared an average of 2 to 3 miles an hour. "I like Tournadozer's maneuverability on this work," says County Hwy. Commissioner M. J. Roidt. "It can swing around anywhere without looking for a driveway."

2. Widening county roads in heavy, wet, partially-frozen snow, 3 to 6 ft. deep, Tournadozer averaged 10 to 15 miles an hour. Giant, low-pressure tires and adjustable runner shoe prevented damage to soft shoulders and road surface.

3. Clearing farm driveways, the "C" opened the access roads in far less time than did big, all-wheel-drive trucks.

4. In 600 hours of plowing, much of it through heavy, drifted snow which greatly slowed or even stopped other equipment, Tournadozer worked with 93% operating efficiency.

Tournadozer's record on summer dirtmoving assignments has been just as impressive. Used by Vernon County with the bulldozer blade the "C" travels job-to-job under its own power . . . saves the assignment of truck and trailer . . . eliminates loading and unloading delays, trouble, and expense. For example, in one day, Tournadozer drove 7 miles and completed 3 jobs . . . cutting corners on 2 town roads and building a bridge approach. On other assignments, it grades for highways, dozes dirt, pulls a scraper, and tows a construction grader.

Give Tournadozer speed and versatility careful study from the standpoint of saving you time and trouble on year-around operation. Like Vernon County, you'll find this 19 m.p.h. Dozer on rubber a high production tool the year around . . . for your dirtmoving assignments, spring, summer and fall . . . and for plowing snow during the winter. Call your nearest LeTourneau Distributor for complete information.

Widening banks of wet snow along Vernon County Hwy. O and K, 15 miles northwest of Viroqua, Tournadozer averages 10 to 15 m.p.h. Note how vertical divider plate eliminates plowing snow back on road. Electrically-operated Snow Wing is available for benching.

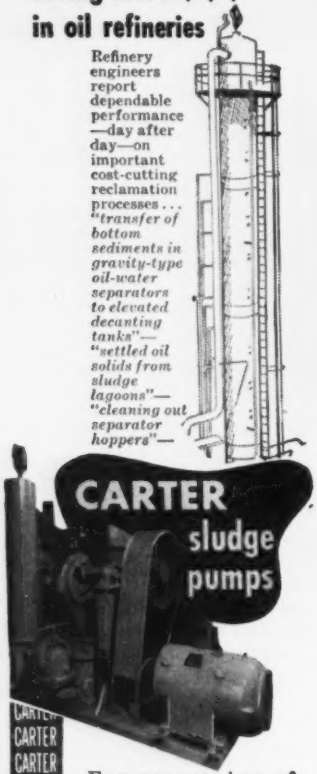
LETOURNEAU EQUIPMENT

R. G. LeTOURNEAU, INC., Peoria, Illinois

HIGH-SPEED, RUBBER-TIRED EXCAVATING • HAULING • LIFTING EQUIPMENT

Saving more $ $ $ in oil refineries

Refinery engineers report dependable performance—day after day—on important cost-cutting reclamation processes . . . *"transfer of bottom sediments in gravity-type oil-water separators to elevated decanting tanks"*—*"settled oil solids from sludge lagoons"*—*"cleaning out separator hoppers"*—



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For processing of "problem" liquids, you will find the Carter sludge pump an actual economy! Specifically designed for handling of solid-laden, viscous and mildly corrosive liquids . . . practically eliminating emulsification, coagulation and agitation.

If you handle similar liquids—and have a problem . . . call us in. Our engineering staff will be glad to render a detailed, analytical report—at no obligation! *Our latest technical bulletin, No. 5102, is almost ready for press. Gives complete data on sludge pumps—and their application to your problems. May we reserve a copy for you? Write today—on your company letterhead.*

181 ATLANTIC ST.

R. B. CARTER SALES INC.
Hackensack, New Jersey

Men and Jobs . . .

PLANNING CONVENTION—Here's the committee planning for the fall convention of the Structural Engineers Association of California. Left to right, Jesse Rosenwald, state director for Northern California; C. R. Graff, convention chairman; Henry J. Degenkolb, secretary-treasurer; and Arthur W. Anderson, president.

Lichtner Co., Inc., Engineers, of Brookline, Mass. as a principal engineer. Educated at West Point, State University of Iowa and Yale University, he served over 18 years with the U. S. Army Corps of Engineers.

Francis Duncan, former city engineer at Dunn, N. C., has been named office manager for the Du Pont Co. in the planning and construction of the H-bomb plant near Aiken, S. C. He received his civil engineering degree from North Carolina State College.

Retirements

L. V. Gaffney, superintendent of public works at Gaffney, S. C., retires after 42 years.

Chas. A. Ellems has retired after 34 years of engineering service with the federal government.

(*Continued on page 85*)

CONGRATULATIONS—Col. C. C. Haug, left, Sacramento district engineer, shakes hands with William Denny of New York, vice-president of Merritt-Chapman & Scott Corp. who jointly with the Savin Construction Corp. of East Hartford, Conn., submitted the low bid—$29,444,000—for the construction of the Corps of Engineers' Folsom Dam on the American River, Calif.

ENGINEER OF CONSTRUCTION—H. George Decancq has been appointed engineer of construction for the Port of New York Authority. Since 1947 he has been resident engineer at Newark Airport and Port Newark, N. J. He started his career as an engineer on the construction of the Holland Tunnel under the Hudson River in 1923. He received his engineering degree from Tri-State College, Ind.

Adams No. 610

King of all Heavy-Duty Motor Graders

"The real heavy-duty champ of motor graders"—"Does 30% more work" . . . That's what owners say about the Adams No. 610 after two years of toughest service.

A big, rugged machine (weighing up to 27,000 lbs.), the No. 610 is engineered to utilize the full torque of its 100-hp. diesel engine—*in all gears.* It's a machine that carries the punch and rugged staying power to tackle and whip biggest, roughest grading jobs.

What's more, the No. 610 offers a combination of operating advantages not to be found in any other motor grader, regardless of size:

Push-Button Starting from Cab—standard.

Power Steering of Mechanical-Hydraulic Type—standard. All advantages of mechanical steering, with power doing the work.

Large, Wide-Tread Tires—for maximum traction and flotation.

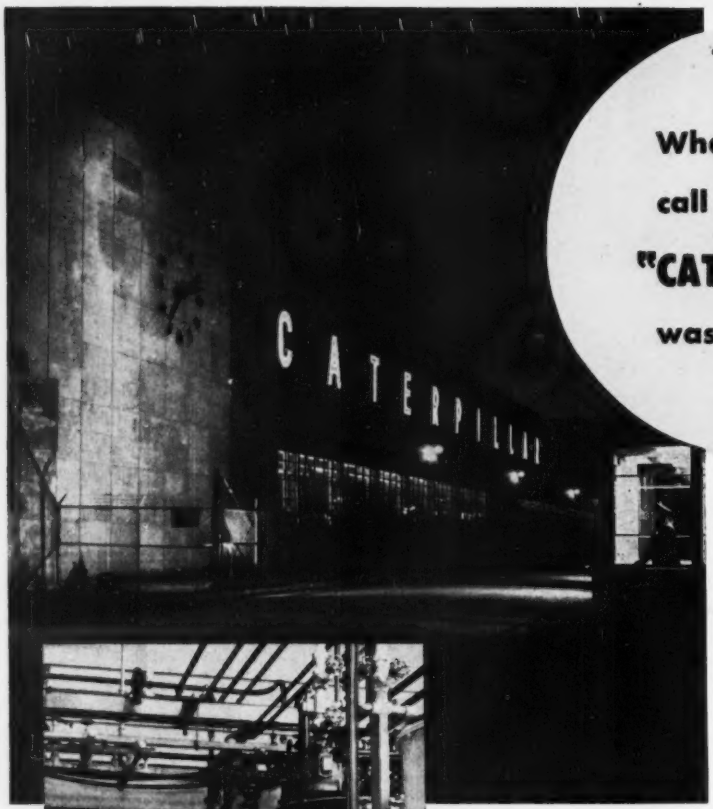
8 Overlapping Forward Speeds, 2 Reverse. High transport speed of 25 mph.

Extra Wide Blade (28 in.)—to utilize the great capacity of the No. 610.

Let your local Adams dealer give you complete information on the No. 610—the greatest of all heavy-duty motor graders.

J. D. ADAMS MANUFACTURING COMPANY • INDIANAPOLIS, INDIANA

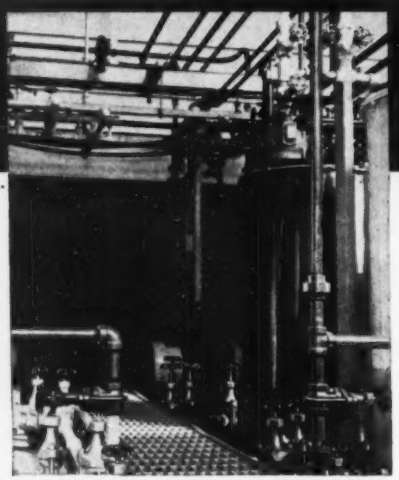
Make your next motor grader an **Adams**



When the call came, "CATERPILLAR" was ready

Another of America's vital plants equipped for lasting efficiency with

JENKINS VALVES



Among the thousands of Jenkins Valves on plant pipelines are these, where the identifying "highway yellow" paint for "Caterpillar" machines is prepared. Over 300 valves are used for flow control in each of several paint mixing units.

They're working around the clock these days at Caterpillar Tractor Co., Peoria, Ill.—one of the largest producers of earth-moving equipment and diesel engines. The big yellow "Caterpillar" machines are urgently needed—both for Defense and for essential civilian construction.

Future-minded planning of this modern industrial plant helps keep production moving. All operating equipment, for example, was selected on the basis of performance and long service life. The engine factory (above), like every building of Caterpillar Tractor Co., is equipped with Jenkins Valves.

Today, Jenkins is bending every effort to meet the Nation's need for valves. It's a big order. The men responsible for the defense production program know that valves are vital to plants readying the country for any emergency. And leading architects, engineers, and contractors rely on Jenkins for peak operating efficiency and economy.

For they know Jenkins builds *extra* endurance into valves—proved by low upkeep cost records in every type of service. Yet, despite this extra value, *you pay no more* for Jenkins Valves. For new installations, for all replacements, let the Jenkins Diamond be *your* guide to lasting valve economy. Jenkins Bros., 100 Park Ave., New York 17; Jenkins Bros., Ltd., Montreal.

Sold through leading Industrial Distributors everywhere.

JENKINS VALVES

LOOK FOR THE DIAMOND MARK

SINCE 1864 TRADE JENKINS MARK

Jenkins Bros

Men and Jobs . . .

Honors

Samuel Arnold Greeley, Chicago, sanitary engineer at U. S. Army camps and other government projects, has been awarded the Frank P. Brown Medal by the Franklin Institute. The medal is awarded to inventors in the building and allied industries. The citation was made to Mr. Greeley for leadership in sanitary engineering in which he has long specialized and is a recognized authority.

RADIO INTERVIEW—John Rinne, right, president of the Structural Engineers Association of Northern Califoria, is interviewed by a San Jose, Calif., radio commentator during a recent association field trip to the Remillard-Dandini Co. brick plant. The junket gave San Francisco Bay area structural engineers and their architect guests an opportunity to observe structural uses of brick and even lay a few themselves. Trip was sponsored by Clay Brick & Tile Association and was enjoyed by a large number of guests.

ON FLOOD CONTROL WORK—Kenneth Chase, left, and Frank Buonora are handling a $600,000 flood control project in North Adams, Mass. The former is project engineer for Petricca Const. Co., Pittsfield, Mass. The latter is engineer in charge for the U. S. Corps. of Engineers, in the New York District. (ENR Staff Photo)

Timber is available for the rush job today, just as it was in the last emergency.

Warehouses, hangars, commercial buildings, factories and other structures using heavy timber construction, equipped completely with approved sprinkler protection, have shown a remarkable record of fire safety over many years.

Departing from the old-time idea of "size for strength," there has emerged from the lumber testing laboratories a new material—timber. The building profession now knows that, pound for pound, timber does as much work as other materials, and in its proper fields of use performs an equally satisfactory service, and generally at lower cost.

Specify timber—there's plenty of it, and timber fabricators in all sections of the country can help you now.

TIMBER ENGINEERING COMPANY
1319 - 18th St., N.W., Washington 6, D. C.

Please send me FREE copy of "Heavy Timber Construction Details" published by National Lumber Manufacturers Association.

We plan to build a.....

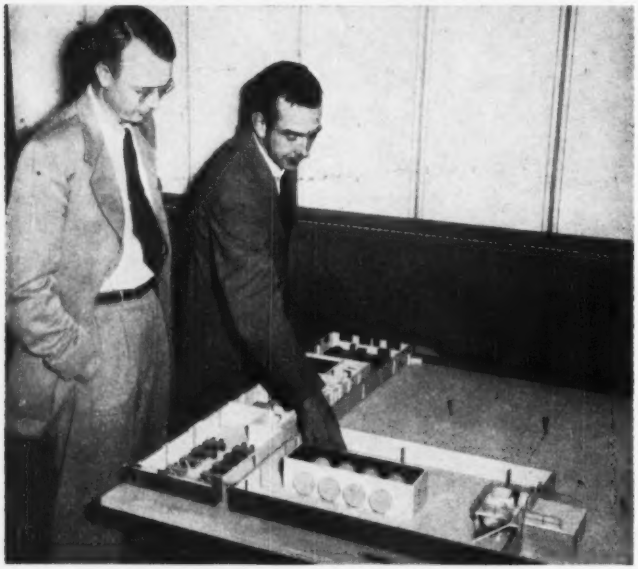
Name.....

Company.....

Street..... City..... State.....

ENR

EDUCATION, RESEARCH



REMOTE CONTROL—Officials of Cutter Laboratories can watch from home office in Berkeley, Calif., progress of new plant being built across the country in Chattanooga, Tenn. As work progresses, this replica of new $1,000,000 building is added to each week on ¼-in.-to-1 ft scale. First actual construction was reported visually to home office personnel; here installation of equipment is being watched. Cutter, pharmaceuticals manufacturer, will add bottling line in Chattanooga plant in large open area shown in model. When new plant is in operation, sometime after Oct. 15, model will be saved to work out possible new plant layouts for machinery and equipment.

Asphalt patching mixture studied at Arkansas

A new research project, aimed at saving the tax-payer's money, at the same time resulting in smoother highways is under way at the University of Arkansas, Fayetteville.

The Highway Research Laboratory of the university's engineering experiment station, is developing an asphalt highway patching mixture which it is hoped will be superior in many ways to present patching materials. In the study, the university is cooperating with the Arkansas Highway Department and the U. S. Bureau of Public Roads.

The laboratory technicians are working to develop a more durable material—a harder substance which would last longer, perhaps the life-time of the highway, after being put on the road, and which would also be more stable in roadside stock piles. Today, stock piles deteriorate after about six months. The material the Highway Research Laboratory wants to develop would dry out less rapidly, so larger stock piles could be mixed at one time. This would mean a large saving, since it is expensive to move machines which mix patching materials.

The mixture to be developed will be more simple, easier to make, and it will utilize materials available in the vicinity where the patching material is needed.

There are many kinds of asphalts, of varying degrees of hardness or softness. All kinds are being tried out in the laboratory. They are being combined with different kinds of aggregates ground to various sizes and into artificial sands of varying fineness.

So far, limestone, pink granite and syenite, a type of granite, have been tested. Before the project is completed stones from all sections of the state will have been investigated.

After the asphalts, fines and stones are combined, the mixtures are tested for their hardnes. The tests are made under conditions more extreme than the mixtures would have to withstand on Arkansas highways. Some are made at freezing temperatures. In one very strict test, the technicians discard any material which has more than one per cent evaporation after enduring 650 degrees Fahrenheit for five hours.

Prof. J. R. Bisett, director of the joint highway research program, who is professor of civil engineering in the university, and W. B. Stiles, associate director of the university's engineering experiment station, estimate that the research findings will save the state more every year than the entire cost of the two-year project.

The State Highway Department and the Bureau of Public Roads are paying most of the operating expenses of the research, while the university furnishes laboratories, teaching personnel and supervisors. The laboratories also serve as teaching laboratories for the university undergraduate civil engineering students, who are required to take a course in asphalts.

Engineers test effect of high water on riprap

Portland district, Corps of Engineers, is making a series of tests to determine the effect of high flows of water on dumped stone riprap, used as revetment in connection with bank protective works.

Results of the tests, authorized by the chief of engineers office under its civil works investigation program, will be made available to other engineering districts throughout the United States.

The tests are being made in a special test channel in the tail race area of Dorena Dam of Row River, a unit of the Willamette basin flood control, power, irrigation and navigation project.

To test the riprap, large quantities of water are released from the Dorena reservoir at stated periods. During these flows the riprap is checked closely for displacement, while measures of the water velocities are recorded. During the tests, rate of flow is increased from 50 cfs to a maximum flow of 2,500 cfs, increasing the stage of the river about 4 ft. The maximum rate of flow is maintained for about two hours, then decreased slowly to 50 cfs over a period of one hour.

Three of these high flows a week, made only in daylight hours, over a period of four or more weeks, will provide the engineers opportunity for observing the effects on the riprap.

Brief News of education and research

• **Fewer students**—First figures of enrollment at New England colleges this

(Continued on page 89)

Only the Timken Company offers

ALL 3

ROCK BIT

TYPES

and a complete Rock Bit Engineering Service!

NO matter which type of removable rock bit is best for your particular job, you can get it from the Timken Company. For *only* the Timken Company *makes all three rock bit types*—multi-use, carbide insert, and one-use "Spiralock". And because our rock bit engineers have all three rock bit types to choose from, they can help you make an unbiased selection of the *one* best bit for your job.

From top to bottom above—

1. **MULTI-USE.** Gives lowest cost per foot of hole when full increments of drill steel can be drilled and when control and reconditioning of bits are correct.

2. **CARBIDE INSERT.** For drilling extremely hard and abrasive ground, small holes, extra deep holes. Holes go down faster, bit reconditioning is simplified.

3. **ONE-USE "SPIRALOCK".** For use where reconditioning is not feasible. Gives lowest unit cost. "Spiralock" union holds bit on dependably, permits easy removal.

Our rock bit engineers have all three rock bits to choose from and more than 18 years of field and laboratory experience behind them. So whether you're looking for lowest bit cost, lowest cost per foot drilled, high drilling speed, or any other advantage, call on them to get the bit performance you're after.

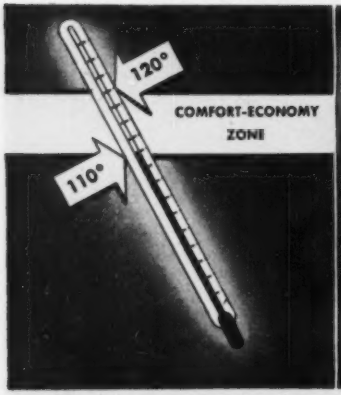
FREE BOOKLET! *Packed with helpful information. Shows full line of bits. Write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".*

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

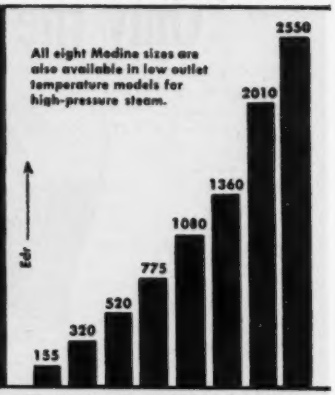
your best bet for the best bit
. . . for every job

Three of many outstanding features that account for the Modine quality reputation



Discharge air temperatures of 110° to 120° F. are correctly related to air-velocities — assure perfect heating comfort plus lower fuel costs.

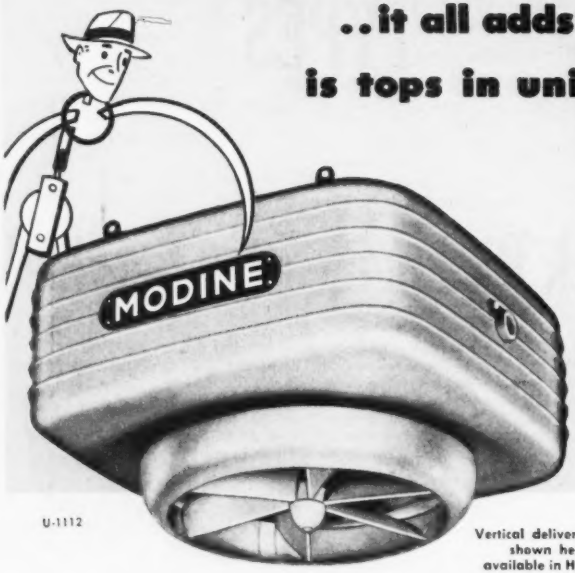
Versatile control of air delivery is provided by Cone-Jet, Truncone or Louvre deflectors. You can choose the *right* one for your job at no extra cost.



Big Modine Vertical Units for big defense plants eliminate expensive ductwork, retain the flexibility necessary for subsequent changes in plant layout.

COMPARE

..it all adds up to this..Modine is tops in unit heater values



U-1112

Advanced engineering . . . superb styling . . . highest grade materials and craftsmanship — all quality hallmarks of Modine Unit Heaters. They're your assurance of *heating performance at its best* — high fuel economy . . . years of trouble-free service. Built to a standard of excellence — Modine is the choice for unfailing dependability, lower operating and maintenance costs. So whether you need Vertical Delivery models (illustrated), Horizontals or Power-Throws — *compare first!* Modine Mfg. Co., 1565 Dekoven Ave., Racine, Wis.

Vertical delivery model shown here. Also available in Horizontal and Power-Throw types.

Write for Bulletin 149-A, "Modine Unit Heating." Or contact your Modine representative listed in the classified section of your phone book.

Engineers rate Modine the standard of excellence

Modine UNIT HEATERS

Education, research . . .

fall, reveal that the technical schools will have a decrease along with the other institutions. Of the four colleges in Worcester, Mass., Worcester Polytechnic Institute shows the sharpest drop of 11 percent less than last year's 730. The faculty of W.P.I. this year will number 87. There were 100 on the teaching staff last year.

• **New science building**—A new building to house the natural science faculty and students of the University of Puerto Rico was recently inaugurated. It is a modern reinforced concrete structure that cost with its equipment approximately $900,000.

• **To increase enrollments**—Eugene D. Seraphine has joined the Engineering Manpower Commission of the Engineers Joint Council as assistant executive secretary. He will assist the commission in its current national drive aimed at increasing enrollments and utilizing present limited manpower most effectively.

• **Engineering awards** — Engineering honors and cash awards totaling $5000 have been given by the Lincoln Arc Welding Foundation of Cleveland, Ohio, to 63 young engineers in 28 different states, representing 34 different engineering schools, to establish scholarships in honor of and named for the engineers receiving the main awards.

• **Plumbing materials substitutes**—Criteria for testing alternate and substitute materials that may be used instead of metals and other critical materials in plumbing installations are to be developed at the University of Maryland under the research program of the Housing and Home Finance Agency, which reports: "Under existing code provisions plumbing systems require a large percentage of the metals used in houses. These metals usually are critically needed in military preparedness activities. Current limitation orders and materials estimates indicate that alternate and substitute materials will have to be used in plumbing systems if all the necessary housing is to be built during the emergency."

• **Interested in gaskets?**—All interested in voting on the proposed standards for nonmetallic gaskets for pipe flanges should obtain a copy of the tentative draft from D. M. Shackelford, Standards Dept., American Society of Mechanical Engineers, 29 W. 39 St., New York 18, N. Y. ASME is administrative sponsor for the American Standards Association's sectional committee B 16 group which has worked out the proposed standards.

• **Housing research**—Under the auspices of the Federal Housing and Home Finance Agency, three housing research projects have been started at Columbia and N. Y. University. At the latter institution the study is entitled, "Planning Survey of Interracial Housing."

For industrial arts—The Board of Education, Youngstown, Ohio, is remodeling Wood street school for industrial arts and adult education with $100,000 donated by C. C. Choffin, president and treasurer of the Scholl-Choffin Co., contracting firm.

• **Evening and Saturday courses**—The Institute of Applied Arts and Science, State University of New York, is planning a wide variety of courses in mechanical technology for evening and Saturday morning courses. This work will be carried out at the N. Y. City unit, 300 Pearl St., Brooklyn. Being offered this fall are courses in Technical Drawing Principles, Engineering Drawing, Technical Mathematics, Physics, Strength of Materials, Machines and Tools for Production, Production Planning and Control, Machine Design, Industrial Management, Tool Design and Metallurgy.

Faculty News

Richard H. Fleming, director of the division of oceanography, U. S. Navy Hydrographic Office, has resigned to become executive director of the department of oceanography at the University of Washington, Seattle.

Appointment of G. R. Fitterer as dean of the schools of engineering and mines at the University of Pittsburgh has been announced by Chancellor R. H. Fitzgerald. Dr. Fitterer assumed his new duties Sept. 1. He has been professor and head of the department of metallurgical engineering since 1939. He was graduated from the Rose Polytechnic Institute in 1924.

Kenneth P. Milbradt, instructor in civil engineering at Illinois Institute of Technology, has been promoted to assistant professor. He received a master's degree in civil engineering from Illinois Tech in 1950.

• **Structural research**—Ralph W. Fox is chairman of a new structural research department at Armour Research Foundation, Illinois Institute of Technology, which will specialize in stress analysis, structures, materials and instrumentation.

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THE FLAME IN ELEVATOR TOWERS
• Now standardized in two basic types—available in both Single and Double-Well models from distributors throughout the country.
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LOAD
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The Newest, Finest

DESIGNED FOR YOUR JOB

These Allis-Chalmers tractors are new models, not merely refinements of existing ideas . . . they are new from the ground up . . . without compromise anywhere in design or material.

They are the answer to your demands for tractors that will give you outstanding performance with any equipment — mounted or drawn. New POWER, WEIGHT and BALANCE put each model in a class by itself! And there's a complete new line of Allied equipment to match these tractors for your job.

BUILT TO "TAKE IT" . . .

These are the finest tractors ever built . . . with ample capacity and strength in every part! And that's no accident! To bring you tractors like these . . . with the qualities you want . . . Allis-Chalmers built them completely new.

You can depend on them to take the loads and jolts of today's jobs . . . because they are mod. ern tractors built for the most grueling operating conditions. They will more than measure up to your expectations!

HD-5
40.26 drawbar hp., 11,250 lb.

HD-9
72 drawbar hp., 18,800 lb.

YEARS AHEAD

Each of these new Allis-Chalmers crawlers gives you a new yardstick for rating tractors. Each sets new standards in its class for performance, strength, servicing, operation. Get the full story from your Allis-Chalmers dealer NOW on this — The Newest, Finest Tractor Line on Earth.

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TRACTOR

Tractor Line on Earth!

EASY TO OPERATE . . .

Operators have long awaited the greater handling ease and comfort now brought to them by this new line of Allis-Chalmers tractors.

Conveniently located controls respond to the slightest effort . . . and are operated in the same familiar way—nothing tricky to "catch on to." There is new shifting ease, new seat and platform comfort, full visibility.

Because the operator's job is easier—takes less effort—he can maintain a steady pace, do a better job throughout his shift . . . day after day.

EASY TO SERVICE . . .

Adjustments are easier . . . lubrication simplified and lube periods greatly extended. Mechanics say these tractors are the easiest to service and repair.

This all adds up to less down time, more producing time . . . longer tractor life at less upkeep cost.

HD-15
109 drawbar hp., 27,850 lb.

HD-20
Hydraulic Torque Converter Drive, 175 net engine hp., 41,000 lb.

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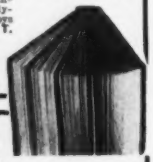
1 **Brings together in a single volume a vast store of information on industrial piping**—supplying the piping designer and erection foreman valuable data and information on what materials and what kind of pipe and fittings should be used, and where. Information on each service—water, gas, steam, etc.—is given in a separate chapter; data on each service includes pertinent methods of flow calculations, the most commonly used materials, fittings, valves, etc. Includes methods for determining pipe sizes and pressure drops, information on such recently-developed materials as alloys and plastics. **By Charles T. Littleton, Formerly Engin. in Charge of Piping, Am. Chem. Co. 394 pages, 170 illus., $8.00**



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2 Shows how to solve problems in hydraulic transients by applying arithmetic integration and trial-and-error arithmetic. Illustrated with actual computations of structures now in successful operation, with a condensed yet adequate theoretical background for the steps prescribed. Covers problems in water hammer, surge-tank design, turbine-speed regulation, stability of governing, pressures in pump discharge lines, filling systems for navigation locks, and surges in open canals. **By George R. Rich, Consulting Engineer, 255 pp., 146 diagrams and tables, $7.00**

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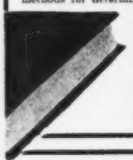

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4 Presents the results of a survey sponsored by **The Conservation Foundation,** providing much information on present development and use of ground water throughout the U. S. For hydrologists, geologists, engineers. Gives basic facts and data, an outline inventory, and maps of total resources. Covers ground water problems resulting from pumping, land settlement and use, irrigation, drainage, waste-disposal, etc. **By Harold E. Thomas, U. S. Geological Survey, 321 pp., 3 maps, $5.00**

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MEETINGS

The officers elected for the 1951-52 year by the Interstate Commission on the Potomac River Basin, are: chairman, Harry Gard Knox, technical adviser to the Pennsylvania State Sanitary Water Board; vice-chairman, George F. Hazelwood, of Cumberland, Md.; treasurer, Daniel L. Seckinger, Md., director of health for the District of Columbia; general counsel, Oliver Gasch, assistant corporation counsel for the District of Columbia. Knox succeeded Harold A. Kemp, director of sanitary engineering for the District of Columbia, who had been chairman for two years. Dr. Seckinger has been treasurer since the birth of the commission.

James H. Council of North Wilkesboro, N. C., has been elected president of the North Carolina Highway Employees Association succeeding Withers Davis of Fayetteville. Merle Adkins of Durham was elected first vice-president; Fred Biggerstaff of Rutherfordton, second vice-president; and O. M. Banks of Raleigh, re-elected secretary-treasurer.

Appointment of seven members to the newly-created Chicago Regional Port District has been announced jointly by Gov. Adlai E. Stevenson of Illinois and Mayor Martin H. Kennelly. The authority was established at the last session of the state legislature to study existing harbor plans and to prepare a comprehensive program for the development of port facilities in the Calumet region, on the south side of the city.

The four appointees are: Robert Kingery of Winnetka, a registered engineer, June 1, 1955. Philip D. Fitzgerald of Chicago, of Fitzgerald and Hickey, June 1, 1954. Allen L. Fox of Chicago Heights, June 1, 1952. Wilson Frankland of Chicago, June 1, 1953. Mayor Kennelly's three appointees are: John V. Hanberg of Chicago, June 1, 1953. William W. Huggett of Flossmoor, June 1, 1954. Edward J. Quinn of River Forest, June 1, 1952.

The Chicago Regional Port District is authorized to issue construction permits for wharves, piers, breakwaters and other structures. It has authority to establish dock and shore or harbor lines, regulate anchorage and speed of vessels, enforce regulations for operation of bridges. It may acquire and maintain port facilities with the approval of the legislature.

CALENDAR

Federation of Sewage & Industrial Waste Association, Municipal Auditorium, St. Paul, Minn., Oct. 8-11.

Concrete Reinforcing Steel Institute, semi-annual meeting, Grove Park Inn, Asheville, N. C., Oct. 8-13.

Regional Plan Conference, N. J. and Conn., Hotel Roosevelt, New York City, Oct. 9.

Structural Engineers Association of California, The Ahwahnee, Yosemite National Park, Calif., Oct. 11-13.

American Society of Planning Officials, national conference, William Penn Hotel, Pittsburgh, Pa. Oct. 14-18.

Street Maintenance and Sanitation Officials, Ohio, Hotel Pic-Ohio, Youngstown, O., Oct. 18-19.

Engineers Council for Professional Development, Statler Hotel, Boston, Mass., Oct. 19-20.

National Council of State Boards of Engineering Examiners, Statler Hotel, Boston, Mass., Oct. 21-24.

Engineers' Society of Western Pennsylvania, water conference, William Penn Hotel, Pittsburgh, Pa., Oct. 22-24.

American Society of Civil Engineers, annual meeting, Statler Hotel, New York City, Oct. 22-25.

National Standardization Conference, Waldorf-Astoria Hotel, N. Y. City, Oct. 22-24.

American Association of State Highway Officials, Fontinelle Hotel, Omaha, Neb., Oct. 23-26.

American Institute of Steel Construction, Inc., annual meeting, the Greenbrier, White Sulphur Springs, West Va., Oct. 22-25.

California section, American Water Works Association, Fairmount Hotel, San Francisco, Oct. 23-26.

Florida Sewage and Industrial Wastes Association and Florida section A.W.W.A. Princess Issena Hotel, Daytona Beach, Fla. Oct. 28-31.

American Concrete Institute, regional Sheraton Hotel, St. Louis, Mo. Oct. 30-31.

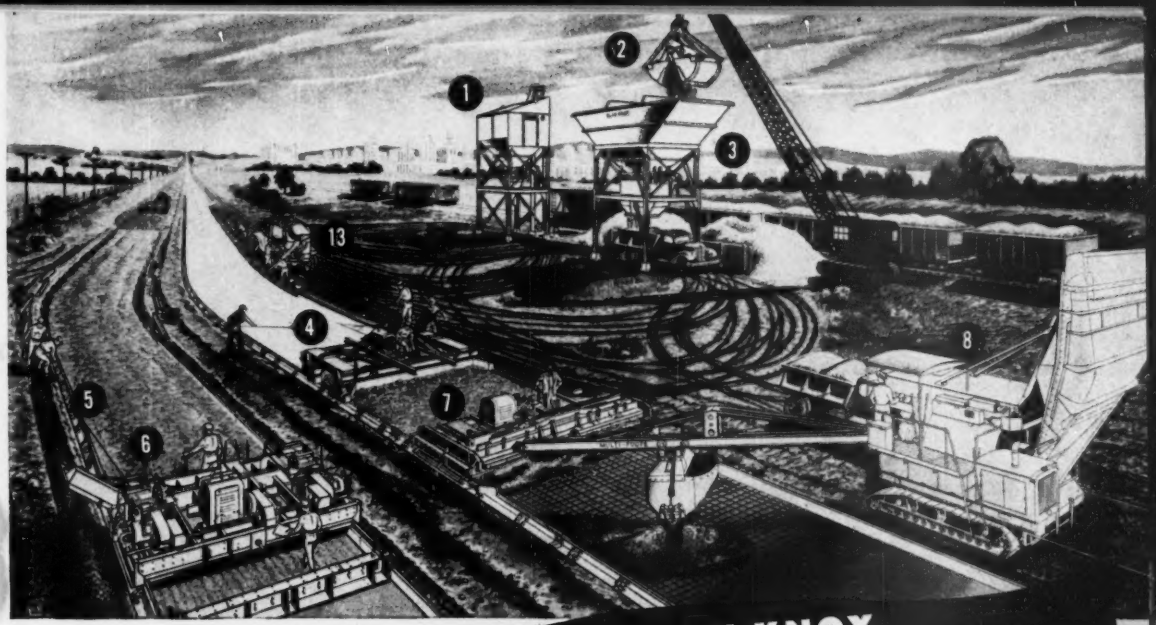
American Public Health Association, annual meeting, Civic Auditorium, San Francisco, Calif., Oct. 29-Nov. 2.

Chesapeake section AWWA, Sheraton Belvedere Hotel, Baltimore, Md., Oct. 31-Nov. 2.

National Conference on Industrial Hydraulics, Sherman Hotel, Chicago, Ill., Nov. 8-9.

Conference on Coastal Engineering, Rice Hotel, Houston, Tex., Nov. 7-10.

Conference on Atomic Installation in Buildings, Building Research Advisory Board, National Academy of Science auditorium, Washington, D. C. Nov. 27-28.



The BLAW-KNOX MATCHED EQUIPMENT PACKAGE

earns *more money* on every job!

CHECK these money-earning advantages of the Blaw-Knox "Complete Package" of concrete construction equipment—with each unit MATCHED to the others, and the entire package MATCHED to the job!

You get every piece of paving equipment you need for each project—from handling material to finishing the slab. You get the assembly-line efficiency of a balanced fleet of units designed to work together. You get lower operating costs—the result of 100% mechanization. You get everything from one source—backed by one responsibility to protect your investment. You get the solution to your service and parts problem through a nation-wide distributor organization. One Blaw-Knox trained man can service practically all your equipment.

These are a few of the reasons why more and more contractors are finding it practical and profitable to use the Blaw-Knox "Complete Package" of matched equipment. Ask your Blaw-Knox distributor for information on "Complete Package" jobs.

The BLAW-KNOX *"Complete Package"* of paving equipment

1. Bulk Cement Plants
2. Clamshell Buckets
3. Aggregate Batching Plants
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5. Steel Paving Forms
6. Precision Subgraders
7. Paving Spreaders
8. MultiFoote Pavers
9. Adnun Black Top Pavers
10. Concrete Buckets
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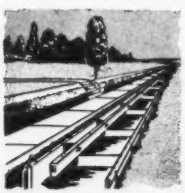

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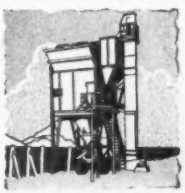

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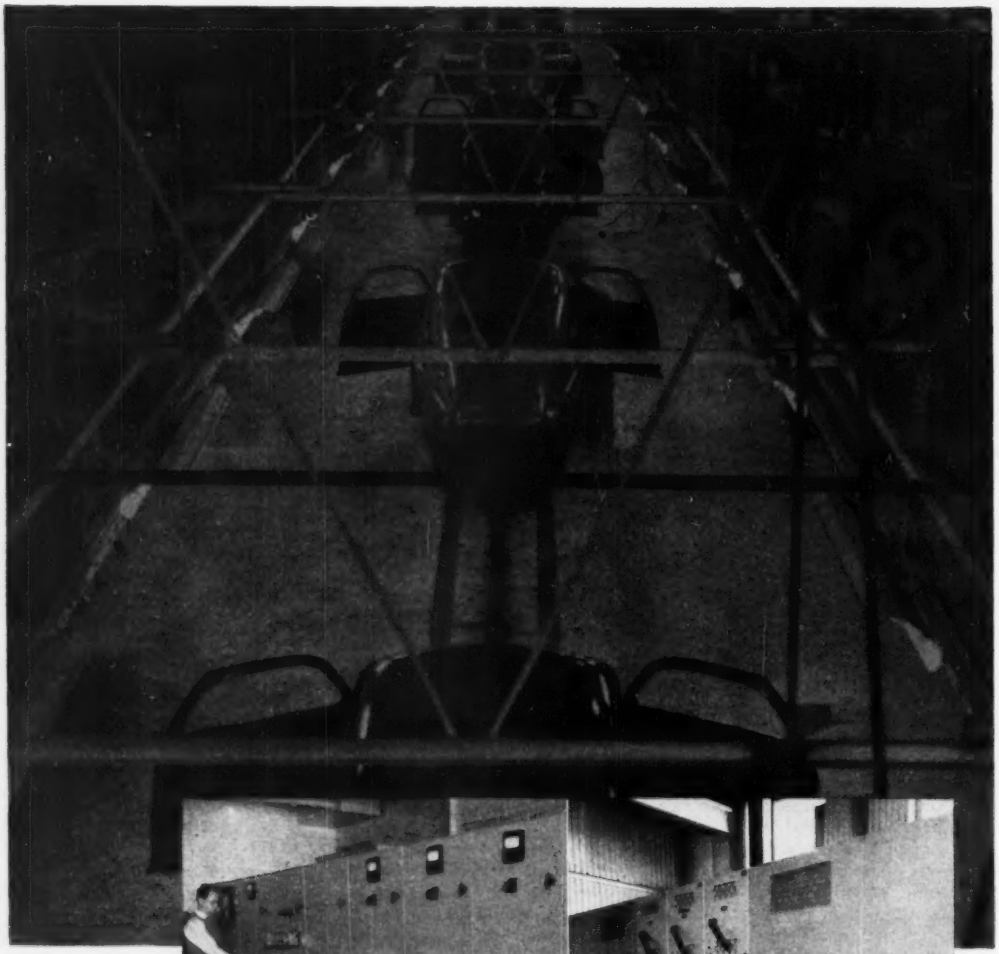
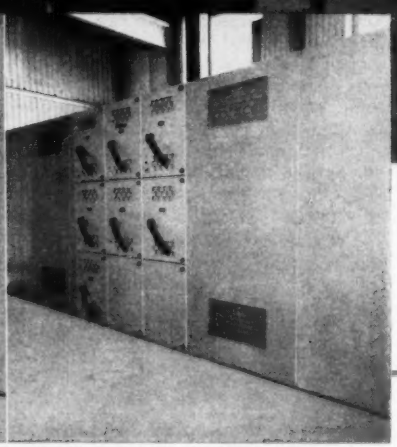


Overhead view of assembly line showing use of industrial-type fluorescent fixtures.

Main high-voltage Westinghouse metal-clad switchgear located in boilerhouse.



Double-ended "ASL" power center with high-voltage switch at each end, dry-type transformers, and drawout metal-enclosed switchgear for low voltage distribution.

Planned Power Pays Off!

- **In reduced costs**
- **In lower losses**
- **In better voltage**

For Large Automobile Assembly Plant

A Westinghouse-planned power distribution system helps keep production rates high on this automobile assembly line. By carrying primary voltage to the centers of electrical load, large savings are made in costs of circuit copper and low-voltage switchgear. In addition, losses are reduced and voltage regulation is improved.

The main high-voltage, indoor, 13,800-volt metal-clad switching station controls the two incoming lines and the primary distribution feeders. At five centers of electrical load, modern metal-enclosed dry-type power centers step down to 480-volt utilization voltage.

All power centers use drawout type, 600-volt air circuit breakers for secondary circuit protection and switching. Flexible, reliable secondary distribution is obtained with three-phase metal-enclosed feeder and plug-in type bus duct.

In new building or expansion of present facilities, planned power can pay off for you, too. For further information call your nearest Westinghouse Office or write Westinghouse Electric Corporation, Agency and Construction Division, Pittsburgh 30, Pennsylvania. J-94894

Acknowledgments: J. Livingston & Co., Electrical Contractors, Boston.
Albert Kahn & Associates, Architects and Engineers, Detroit.

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Le Roi gives you more for your MONEY!

more versatility

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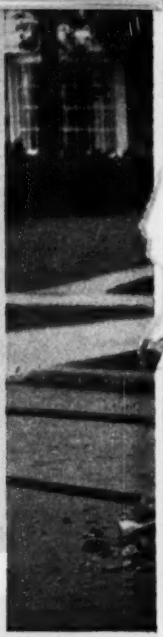
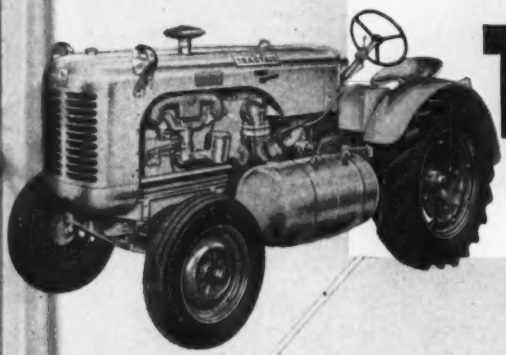
Combination bucket and crane boom. Crane boom folds back out of way when not in use. Bucket holds 10½ cu. ft. — lift capacity 1000 lbs. Crane lift capacity 800 lbs.



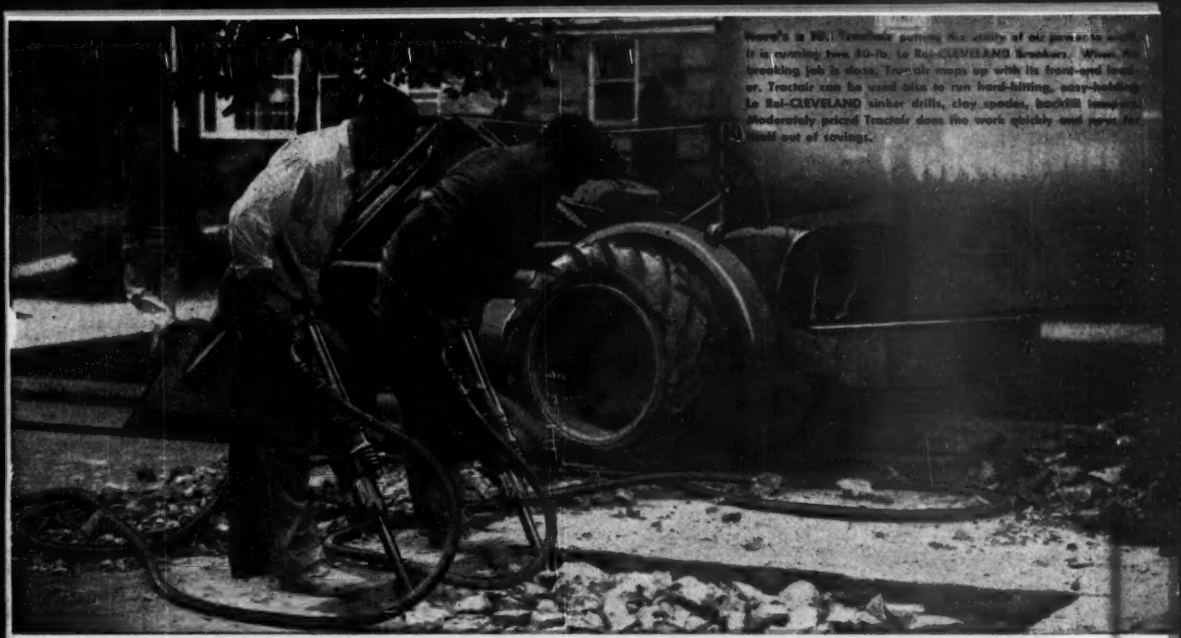
TRACTAIR



Tractair Mobildrill — a compresser and wagon drill in a single, self-contained, self-propelled unit. Universal mounting and swinging boom permits drilling at any angle. Drilling is easier and faster thanks to Le Roi-CLEVELAND air feed.

Loader with backfill blade in place of bucket. Width 6', mold board height 2'8", maximum lift above ground 1'4".

Trac-Jac consists of a Le Roi-CLEVELAND air-feed sinker drill mounted on Tractair. Feed and drilling controls are within easy reach of the operator. The mobility of this unit makes it ideal for mud-jacking and many other applications.



—Money-saving Handy Man

Combines air power and horsepower to give you greater utility for lower costs

HERE'S air power — 105 cfm — that really gets around! Good traction, low center of gravity, and Tractair's 35-hp engine give you outstanding mobility — self-propelled mobility that doesn't tie up trucks and men; mobility that saves you time and money.

That's why Le Roi Tractair can take air power anywhere any time. That's why you can make more use of work-saving Le Roi-CLEVELAND air tools to cut your costs further.

Just add a front-end loader (with its 8 quickly interchangeable accessories) and you multiply Tractair's usefulness. Not only will it handle breaking, clay digging, drilling, and tamping; but also loading, lifting, backfilling, snow-plowing, etc.

Yes, Tractair is a money-saving handy man. Watch one work — you'll see why. Make arrangements with your nearby Le Roi distributor. A new Tractair loader bulletin and job-data sheets are available. They show how Tractair saved money for others. Just write for them.

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Activities of our Industrial and Building Construction Division during the past 12 months show the greatest period of expansion in M-C & S history.

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OBITUARY

John C. Callaghan, 83, former deputy minister of railways for Alberta, died Sept. 3 at Edmonton. He was one of western Canada's pioneer railroad builders.

John Kenner Elliott, 55, of Wilmington, N. C., construction project manager on many big jobs in the United States and abroad, died Sept. 10. He was project manager for C. M. Guest and Sons on the construction of a $23,000,000 pulp mill at Acme, N. C., for the Riegel-Carolina Corporation. He also had worked on the Acapulca-Mexico City road in Mexico, the Philadelphia water works, Celanese Corporation of America plant near Rock Hill, S. C., the Burlington Mills plant near Altavista, Va., and the Calhoun Tower Apartments in Greenville, S. C. He was a graduate of Virginia Military Institute and Texas A. & M.

William X. Hull, 66, engineer, who had been supervisor of construction work for the Army Engineers at the Canal Zone in 1934 and who was the foreign liaison officer for the Agriculture Department's Soil Conservation Service, died Sept. 8 in Washington, D. C. Mr. Hull joined the Agriculture Department in 1934.

Andrew Weiss, 75, pioneer hydraulic engineer in Mexico, consultant since 1926 of the Hydraulic Resources Ministry, who came to the United States from his native Austria in 1902 and served the U. S. Irrigation Commission for 24 years, died recently in Mexico City.

John F. Maher, 60, general superintendent of A. Bentley & Sons Co., Toledo, Ohio contractors, died Sept. 9. He joined the firm in 1903 and became superintendent in 1926.

Louis C. Kaifer, 66, Youngstown, Ohio, who retired as a test engineer with the Ohio Highway Department in 1950, having been with the department for 23 years, died Sept. 10.

Chester A. Richardson, 74, a designing engineer for the Quonset Point, R. I., Naval Station during World War II, died Sept. 8, in Melrose, Mass. He was graduated from Massachusetts Institute of Technology in 1900 as a civil engineer. He began his career with Charles T. Main, Inc., and for the last seven years has been with Metcalf & Eddy, both Boston engineering firms.

(*Continued on page 101*)

New York's City Hall, completed in 1811, as it looked 100 years ago

The City of New York has several cast iron water mains in service that were laid more than a century ago. They are part of approximately 5,000 miles of cast iron mains representing about 98% of all the pipe in New York's distribution system. The contrast in traffic and construction, above and underground, today and 100 years ago, is fantastic. Yet the shock-strength, crushing-strength and beam-strength of cast iron mains have enabled them to withstand the unforeseen stresses imposed by vast changes. Because of these strength factors and effective resistance to corrosion, cast iron water and gas mains laid over 100 years ago, are still serving in the streets of 38 cities in the United States and Canada.

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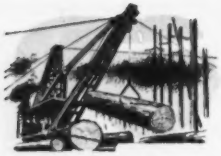

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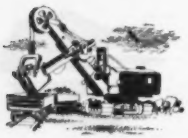

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1009

Obituary . . .

Charles J. Doyle, 51, of Wakefield, Mass., construction man, and a former Seabee in War II, died Sept. 13. His father founded the Doyle Construction Company and upon his death, Charles and his brother, Walter J. Doyle, took over management of the business. During the war he served in the Pacific area.

Carroll F. Pritham, 46, assistant superintendent of the West Springfield, Mass., Water Department, died at Newton, Mass., Sept. 11. A graduate of the University of Maine, he was formerly an engineer with the Maine State Highway Commission and superintendent of water and sewer districts at Presque Isle, Me.

Leslie A. Forsyth, 55, chief engineer of Keefer & Jones, Des Moines, Iowa died recently. A structural engineer, he had been connected with firm since 1932.

Giovanni Patrizio, 75, a well-known terrazzo contractor died in Pittsburgh, Pa. Sept. 13. He was founder and general manager of the Patrizio Art Mosaic Co. which set mosaics in many important buildings.

Raymond A. Schreiber, 60, structural engineer and building designer, died recently in Des Moines, Iowa.

James F. Fouhy, 70, a consulting civil engineer, died in Brooklyn, N. Y. C., Sept. 16. He received an engineering degree from M.I.T. in 1905. During the first world war he was chief engineer for the government in shipyard operations on Staten Island. He also taught advanced surveying at Brooklyn Polytechnic Institute.

Henry A. Chandler, 76, died at his home in St. Andrews, N. B. Sept. 8. He was a civil engineer with the Canadian Pacific Railway for 35 years and had been retired in 1939 as divisional engineer; having been stationed at Moncton, St. John and Woodstock, in New Brunswick.

A. Pearson Hoover, 72, retired consulting engineer and first chairman of the City Planning Commission of Yonkers, N. Y., died at Pleasantville, N. Y., Sept. 16. He attended Rensselaer Polytechnic Institute. He served as an engineer for Charles T. Main Construction Co. in Boston, and as construction manager for the John W. Ferguson Co. in New York. In the first world war he was a lieutenant colonel in charge of design and construction of a $24,000,000 permanent Army supply base in New Orleans.

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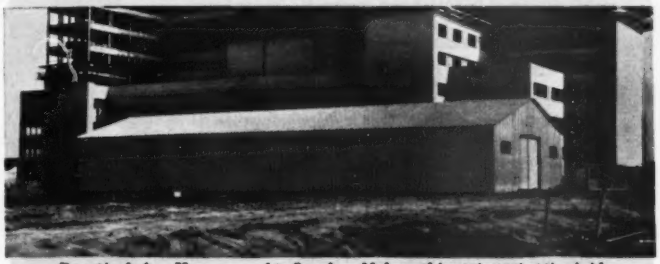

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LABOR

Houston bricklayer business snafu

Payment of illegal wages, illegal guaranteed overtime, payment of extra cash on the mortarboards and the like are really messing things up in the bricklayer trade in and around Houston, Texas. It all started a few months ago when the Construction Industry Stabilization Commission approved a general 15¢ an hour increase for all trades except the brickies, who were not signatories to the contract and therefore could not be legally included. This called for separate rulings on a individual basis for the bricklayers and came through approved on August 1, bringing their hourly rate to $3.025. The Dallas rate is $3.435.

Meanwhile one major contractor took unilateral action, offering overtime in the form of a 9-hour day, giving the brick jugglers a take-home daily pay of $30.20 as compared with the approved area rates of $24.25. The resulting hue and cry brought assurance from the industry members of CISC that guaranteed overtime is in violation of the wage stabilization agreements. It's enforcement division has been requested to make exhaustive investigations in the Houston area to determine the extent of the overtime violations.

Brickies and Associated General Contractors there have jointly requested a second 15¢ raise which is now pending before CISC and will have to wait its turn in the stacks of applications. One ray of hope for the AGC is their recently inaugurated program for accelerated apprenticeship classes for bricklayers.

Contractor called in to end labor trouble

Remodeling work on the new Community Chest headquarters in Akron, Ohio has been resumed after being closed down slightly more than a week in a dispute over the use of both AFL and CIO workmen on the project.

The problem was solved with the hiring of a private contractor to supervise the job. He is J. E. Williams, president of the Williams and Snyder Construction Company of Akron. He will be in charge of the work and hiring of workmen. The Community Chest will continue to purchase all materials for the job, however.

Work was halted when AFL tradesmen objected to working on the job along with CIO tradesmen. The Community Chest was trying to divide the work between tradesmen of both unions because both contribute to the Chest. The AFL objectors agreed to return to work after arrangements had been made to turn the matter over to a contractor. Plumbing and electrical work was resumed, with the only remaining major job that of painting.

NLRB makes pro machinists ruling

Last week the Whittenberg Construction Company of Louisville, Kentucky was ordered to hire members of the International Association of Machinists on the same terms as any other workers. The order, issued by the National Labor Relations board in Washington, was the result of charges filed by the IAM in Paducah.

The Board accepted the finding of a hearings officer that Whittenberg had agreed to hire only members of the AFL Building and Construction Trades on his job at the old Kentucky Ordnance Works in Paducah.

They further ordered the company to pay 16 IAM members for any time lost because of the policy, said 16 having allegedly been refused employment directly. The company has the right to appeal the ruling to the U. S. Court of Appeals in Cincinnati.

All or nothing at all say Pennsylvania plumbers

State efforts to construct sewage treatment facilities at three mental hospitals in Pennsylvania's Allegheny County are still hamstrung by organized Master Plumbers associations in a dispute on installation work. The nub of the situation: plumbers demand *all* piping in connection with the projects; the General State Authority takes the stand that pipe work in the actual sewage treatment system comes under the classification of "process manufacturing," not plumbing, and can be installed in units as it comes from the manufacturers by any group of workmen the contractor selects.

The issue was laid before Martin P. Durkin, international president of the Plumbing and Pipefitting Industry in Washington, and he tossed it right back as a local issue to be settled at that level.

Each time the Authority has tried to get bids from the plumbers they have drawn a blank. The few bids that have come in have "been way out of line" according to a spokesman for GSA. Meanwhile the State Supreme Court, in the Pittsburgh Parking Authority case ruled that authorities must separate construction contracts into general, heating, plumbing and electrical classifications for separate bids. Again GSA tried on its $334,000 Mayview plant, but no plumbing or heating bids were forthcoming. A readvertising for plumbing and heating bids (with the controversial plant piping left in with the general work) drew no response. Still another try brought one bid—far in excess—from an eastern Pennsylvania concern and none from Pittsburgh and Allegheny plumbers.

As one possible means of solving the impasse a House-approved bill is currently awaiting Senate action to permit state authorities to bid jobs on a single contract without the breakdown required for local authorities.

Contractor hurt in labor skirmish in Pennsylvania

AFL unions have been picketing the $1.3 million federal housing projects at Farrell, Pennsylvania, charging that two contractors there were employing non-union labor. Joseph David, one of the contractors, was allegedly struck on the head during a skirmish in which the pickets attempted to prevent David's employees from going to their jobs.

WSB says OK to Wisconsin raise; nix to Indiana

Wage increases for about 2,000 union bricklayers in Milwaukee county and parts of Washington and Ozaukee counties of Wisconsin were approved by the Wage Stabilization Board last week. They will receive an increase from $2.65 to $2.97 an hour; foreman's wages will increase from $2.90 to $3.22. The Milwaukee Building Trades Employers' Association and the Mason Contractors' group had previously approved the increases which will be retroactive to June 1st, the expiration date of the old contract.

At almost the same time WSB denied an additional above-ceiling 3½¢ wage increase for stonecutters, carvers and planermen employed in the Indiana limestone industry. They had recently granted a 4-cent above-ceiling raise for the stone workers. Three other stone crafts—draftsmen, machinists and blacksmiths—have similar 3½¢ requests pending and it's now assumed that the board's ruling will apply in their cases as well. The de-

(*Continued on page 104*)

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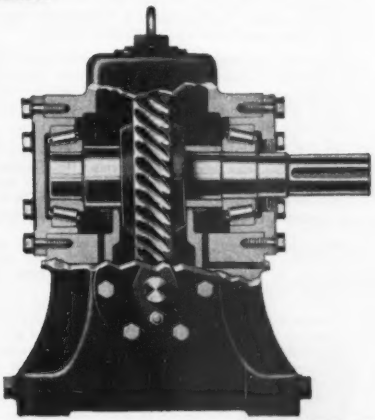

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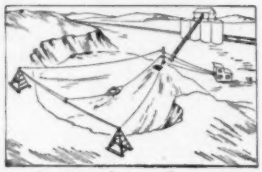
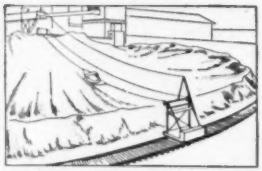

Sauerman Scraper Excavator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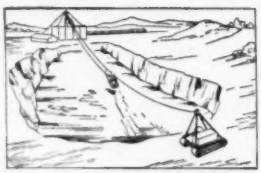
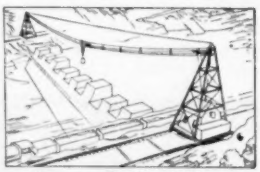

Sauerman Slackline Excavator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(Continued from page 102)

nial of the raise was viewed as a curtain-dropper on contract negotiations between management and the crafts which have been under way, off and on, since last Nov. 15.

Three other unions—quarryworkers, millworkers and crane operators—have not yet reached an agreement with management on the above-ceiling raise. Management has offered them the same 7½¢ which was the basis for agreement with the other four crafts but they have demanded 11½ cents.

Atom plant work resumed; engineers return

Fullscale construction of the $500 million Paducah atomic plant was resumed with the return of 920 operating engineers of the AFL. The walkout was reported as the result of dissatisfaction on the part of the engineers the day before after assignment of men for maintenance work at the main concrete plant. F. H. McGraw & Company hold the main work contract with the Atomic Energy Commission.

Fine of $9 closes case started two years ago

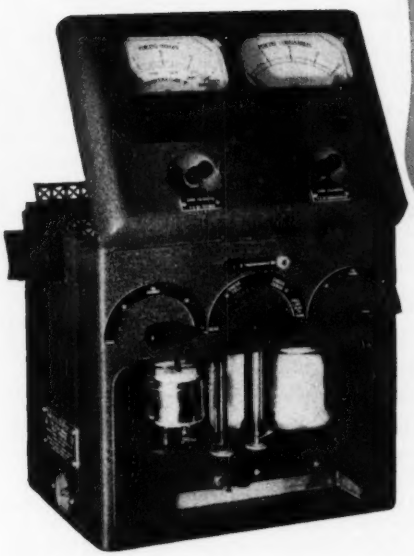
The Medawaska Lumber Company of Coburn Gore, Maine, in paying a fine of $9.00 brought to a close a case that started two years ago with charges of unfair labor practices in the U. S. District Court at Portland. The big lumber firm had paid a total of $2,500 in December 1949, at which time most of the charges were disposed of. Nine counts were continued, however, until restitution of $4,487.87 had been made to some 157 employees. Charges against the firm included failure to pay overtime, falsifying records, and oppressive child labor.

Jackson, Michigan carpenters settle

Fringe issues, such as vacation pay, travel pay and holidays kept some 200 carpenters on strike although a wage rate of $2.50 per hour had been agreed on. The walkout halted work on five public schools as well as several industrial and retail projects. Exactly one week later, on September 17 they settled their differences with the Jackson Contractors' Association and the carpenters, all members of Local 651, AFL, went back to work.

The agreement also provides for double time after eight hours a day. This, plus a 25¢ an hour increase, was substituted for the tradesmen's initial demand for a 50¢ rise. Sixteen contractors in all were affected.

I SPY



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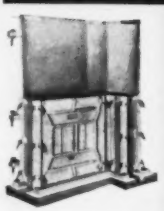

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CONSTRUCTION BUSINESS

Iron, steel expansion gets priority

The iron and steel industry has received certificates of necessity totaling $1,798 million through August 18, as allowable accelerated tax amortization toward $2,527 million in proposed production and fabrication facilities, according to the Defense Production Administration.

Expansion of production and fabrication facilities for non-ferrous metals and alloys call for an investment of $463.5 million, of which $363 million will be covered by rapid amortization.

An estimated $66 million will be invested in expansion of cement and concrete products facilities, according to DPA. Of this, $45.5 million will be allowed for fast tax write-off.

Another $8.2 million will be invested in expanded lumber production. DPA has allowed $3.5 million of this to be covered by rapid amortization.

DPA said that producers of basic materials continue to get priority for accelerated tax amortization. The basic materials classification, which covers both production and fabrication, includes coal and coke, iron and steel, mining of iron ore, and non-ferrous ores, non-ferrous metals and alloys, metal scrap reclaiming, chemical products, gasoline, fuel oils and lubricants, rubber, refractories, fiber glass, cement and concrete products, cotton ginning, textiles, lumber and pulp and paper.

As of August 18, the entire basic materials group represented $5,824 million, or 62% of the total value of all approvals. Within this basic materials group, iron and steel production and fabrication accounted for 27% of the value of all approvals.

Machinery manufacturers face enforced vacations—can't get steel needed

Some manufacturers of construction machinery face shutdowns this week because of material shortages, Harold Hess, executive vice president of the Construction Industry Manufacturers Association, disclosed last week.

Companies loaded with defense contracts may exceed second quarter shipments, but the industry total for the third quarter will fall below the second quarter level because of enforced vacations due at some plants which have not been able to get steel, Mr. Hess said.

• **Gloomy outlook**—Major companies in CIMA are pessimistic about fourth quarter production. Present indications of material allocations point to an even greater reduction in industry production in the fourth quarter than in the third, Mr. Hess asserted.

Shipments of excavating and earthmoving equipment, including tractors, during the second quarter of 1951 were valued at $210 million, up 16% over first quarter 1951 shipments of $181 million, according to the Bureau of the Census.

Second quarter shipments of power cranes and shovels, as well as road construction and maintenance machinery, showed increases of 15% over the previous quarter. Shipments of construction machinery for mounting on tractors increased 11% in the second quarter, compared to the first quarter.

Factory shipments for export of excavating and earthmoving equipment and tractors (other than power cranes and power shovels) totaled $36 million in the second quarter of 1951. This was a decrease of 3% from the previous quarter.

The Census Bureau reported shipments of 1,861 power cranes and shovels totaled $36 million in the second quarter of 1951. This was a decrease of 3% from the previous quarter.

The Census Bureau reported shipments of 1,861 power cranes and shovels from ⅜ to 2½ cu yd capacity, during the second quarter, compared to shipments of 1,689 units in the first quarter.

Dollar volumes of these shipments was $46.7 million in the second quarter as against $40.5 million in the first quarter. In addition, 3,120 front-end attachments were shipped in the second quarter and 2,606 in the first quarter. Dollar value of these attachments is not included in the $46.7 million.

Total value of shipments of road construction and maintenance machinery in the second quarter was $43.3 million, compared to $37.7 million in the first quarter.

• **Ditchers, trenchers increase**—Shipments of 285 ditchers and trenchers were reported in the second quarter; 232 were reported in the first quarter. Dollar value was $2.8 million in the

(*Continued on page 108*)

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LOCK JOINT

CONCRETE PRESSURE PIPE

HARTFORD CONN.

PORTLAND ME.

More than anyone else, those responsible for supplying water for domestic or industrial use appreciate the value of pipe lines which provide these four freedoms:

Freedom from:

- ★ Rupture or blow-out
- ★ Maintenance and repairs
- ★ Loss of carrying capacity
- ★ Corrosion or deterioration

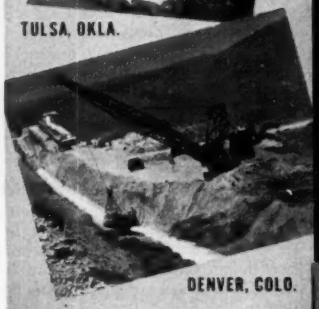
The water works man who installs Lock Joint Concrete Pressure Pipe will have trouble-free pipe lines. The careful design of Lock Joint Pressure Pipe does not permit blow-out or rupture; its dense concrete walls are immune to tuberculation, corrosion or electrolytic attack; and its useful life has been estimated by competent hydraulic engineers at more than 100 years. Among Lock Joint's strongest supporters are the water works officials who have installed this type of pipe and who point to it as the most economical in their systems.

• • •

If you are quality minded yet cost conscious, specify Lock Joint Pressure Pipe, secure in the knowledge that you are receiving the best value the pipe industry can provide.

TULSA, OKLA.

NORFOLK, VA.



DENVER, COLO.

KANSAS CITY, MO.

LOCK JOINT Reinforced Concrete PRESSURE PIPE

LOCK JOINT PIPE COMPANY

Est. 1905

P. O. Box 269, East Orange, N. J.

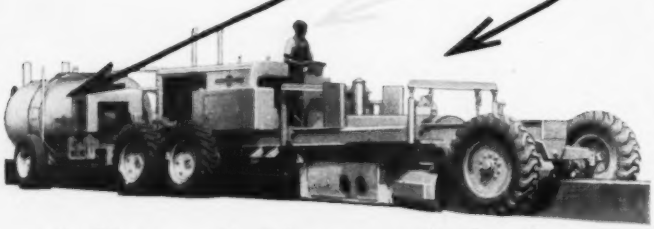
Pressure Pipe Plants: Wharton, N. J., Turner, Kan., Detroit, Mich.

BRANCH OFFICES: Cheyenne, Wyo. Casper, Wyo. • Denver, Col. • Kansas City, Mo. Valley Park, Mo. • Wichita, Kan. • Chicago, Ill. Rock Island, Ill. • Kenilworth, N. J. • Hartford, Conn. • Tucumcari, N. Mex. • Tulsa, Okla. Oklahoma City, Okla. • Beloit, Wis. • Hato Rey, P. R.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

This Is a Complete Traveling Roadbuilding Plant for Soil-Cement Stabilization and Road Asphalt Mixes!

WOOD ROADMIXER
One-Man Crew
WOOD Binder Supply Tank



1 Man—2 Pieces of Equipment

This is a **single-engine,** self-powered, self-propelled Wood Roadmixer unit. It produces up to 1600 tons of predetermined, ready-to-spread mix per 8-hour day. ☆ Like other Wood Roadmixer units, it delivers higher production at less cost per square yard or per ton than any other method or equipment used for surface courses or base stabilization. ☆ Equally effective on road oil or soil-cement mixes, Wood Roadmixers cost less to buy, operate and maintain than any other comparable equipment. ☆ See your Wood distributor or write us direct for literature and prices on Wood Roadmixers and Wood Roadbuilding Equipment.

WOOD MANUFACTURING CO.
Box 620 • 6900 Tujunga Ave.
North Hollywood, California

Export Offices • 215 W. Fifth St. • Los Angeles 13, Calif. • Cable Address: Woodex

25 YEARS EXPERIENCE
for SATISFACTION
Foundation
WELLPOINT SYSTEMS
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SEND FOR LITERATURE

Foundation Equipment
CORPORATION
Long Island City 1, N. Y. RAvenswood 9-0590
Chicago, Illinois Hilltop 5-1545

Construction business . . .

(*Continued from* page 106)

second quarter, compared to $2.4 million during the first three months of this year.

Both divisions of this category, ladder-type and wheel-type, showed increases. Ladder-type shipments were 91 in the second quarter and 77 in the first. Dollar value was $958,000 and $927,000 respectively.

Shipments of 194 wheel-type units were reported in the second quarter, compared to 155 during the first quarter. Second quarter dollar value for the wheel-type units was $1.8 million. First quarter dollar value was $1.5 million.

• **Motor graders**—Shipments of motor graders and light maintainers in the second quarter totaled 2,890 units, valued at $24 million. This compared to first quarter shipments of 2,668 units, valued at $21.8 million.

Pull-type and elevating graders accounted for 187 units, valued at $238,000 in the second quarter. This was up substantially from the first quarter when 136 units were shipped, with a dollar value of $198,000.

Shipments of 81 portable bucket-line conveyor-type loaders were made in the second quarter. Value of these was $631,000. First quarter shipments consisted of 77 such units, valued at $588,000.

An increase was also noted in second quarter shipments of rippers and rooters. Reported shipments of these in the second quarter totaled 197 units, valued at $371,000, compared to 164 units shipped in the first quarter, with a dollar value of $306,000.

Total shipment of rollers was down slightly, from 1,230 in the first quarter to 1,200 in the second quarter. Dollar value dropped from $4.08 million to $4.05 million.

• **Dozers and loaders**—Total value of shipments of construction machinery for mounting on tractors, was $18.5 million in the second quarter, compared to $16.7 million in the first quarter.

Manufacturers shipped 1,614 shovel-type loaders in the second quarter, compared to 1,451 in the first three months of this year. Comparative dollar values were $3.7 million for the second quarter and $3.1 million for the first quarter.

The Bureau of Census reported shipments of 2,520 bull dozers (cable controls) in the second quarter compared to 2,502 in the first quarter. Dollar value was $4 million in the second quarter, $3.9 million in the first.

A total of 3,427 bull dozers (hydraulic controls) were shipped in the second quarter of this year as against

(*Continued on* page 112)

Steady digging...

or fast mobility...

above: A Lorain-50K shovel on 14' crawler. Crawlers 11' and 12' long and 13' wide also available.

below: A Lorain MC-504W 25-ton Moto-Crane. It's a basic "50" turntable but with different mounting and front end.

FIT THE "50" TO YOUR JOB

■ Take the Lorain-50 "Series" turntable with its plus-power engine and shock-absorbing hydraulic coupling. Then, if it's a crawler job, choose from *four* crawlers in 3 lengths and 2 widths. Or — if you need high speed travel and unlimited mobility — put the Lorain-50 turntable on a rubber-tire Moto-Crane with 4 or 6-wheel drive. Then fit it with shovel, crane, clamshell, dragline or hoe — and you're in business for profit for a long time to come. Investigate the Lorain-50 "Series" story when you're ready for your next 1-yard class machine!

THE THEW SHOVEL CO.
LORAIN, OHIO

FOR FACTS ON THE "50" SEE YOUR ***THEW-LORAIN*** DISTRIBUTOR

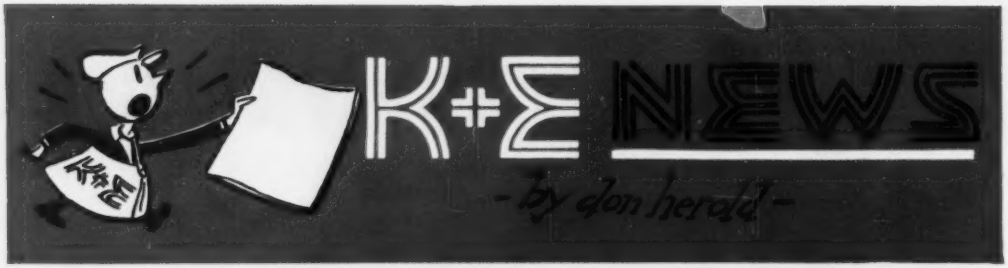
LORAIN 50 SERIES

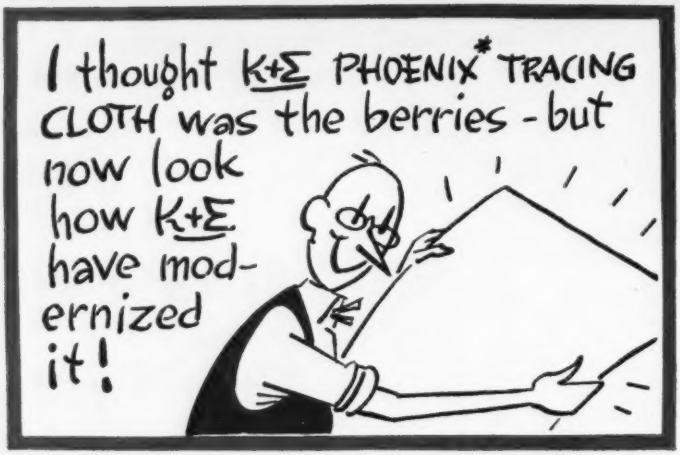
LORAIN "50" SELECTION FOR BIGGEST JOB PROFITS

BASIC TURNTABLE DESIGN	1
RUBBER-TIRE CARRIERS	2
CRAWLER MOUNTINGS	4
FRONT END BOOMS	5

THEW LORAIN

SHOVELS
CRANES
CLAMSHELLS
DRAGLINES
HOES





how good can a tracing cloth get!

PHOENIX* Tracing Cloth always did feel good to an engineer's pencil, but, now, new improved N166 PHOENIX feels better than ever—performs better—is better. It's whiter than ever—which gives it better contrast for pencil line drawings. (This helps reprint transparency.)

The new PHOENIX is toughened to take today's new vigorous printing techniques—repeated trips under higher powered lights or through hotter printing machines.

The new N166 thrives under an ultra-violet test, which equals thousands of prints on a machine, or years of exposure to daylight. No appreciable yellowing.

Improved PHOENIX resists heat of glass cylinders even as high as 250° to 275°. Will not stick.

K&E have also given this cloth a Bureau of Standards three day 212° heat test, which is the equivalent of years of aging. It retains its whiteness remarkably well.

The new PHOENIX resists ammonia vapors and discoloration by contact with diazo prints in storage.

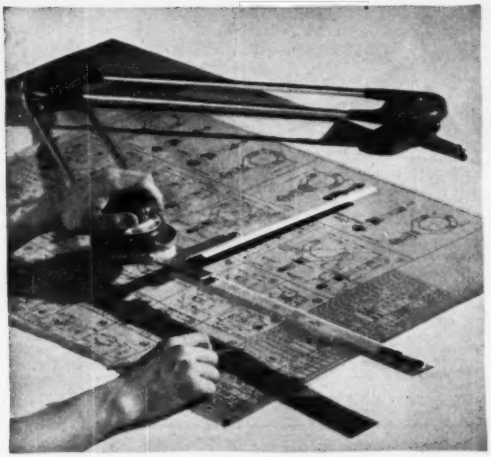
Its surface takes friction heat of motor erasers without softening or stain.

2-way water resistant

Both sides of the new PHOENIX are wonderfully water-resistant. This is important, since, if one side is more water-resistant than the other, the weaker side runs the show. By water, I mean water AND perspiration.

Gosh, I never dreamed I could say so many exciting things about a piece of cloth!

*Trade Mark

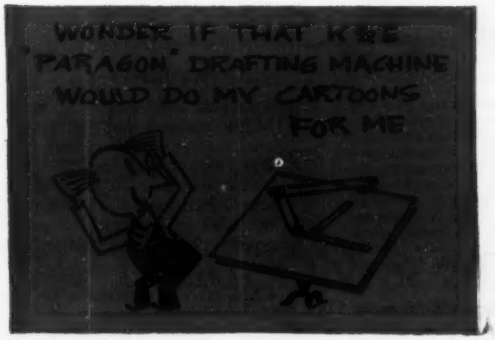


it's twice as fast as "human" drawing

You wouldn't try to be Rachmaninoff without a piano, or a Kreisler without a fiddle. Well, who would want to be a draftsman without a K&E PARAGON† DRAFTING MACHINE?

This miracle machine makes you a veritable orchestra leader at your drawing board. It combines T-squares, triangles, protractors and scales, all in one unit, controlled entirely by one hand.

You can move a rule all over the board, and the rule stays parallel to its original position. You can draw all lines to exact length. The lightest touch rotates the scales to any angle desired.



Permanent accuracy is assured, because the open center arm construction makes it practically impossible to disturb the factory-set band tension.

†Trade Mark ®

this wheeo-eraser saves time and elbow grease

This K&E MOTORASER* makes old-fashioned hand erasing look horse and buggy. It reduces your erasing time to seconds.

Since it depends on speed rather than pressure, the MOTORASER does not wear holes in paper. It's as accurate as a pencil point, yet will clean large areas in a jiffy.

It's handy in the hand—a 3 inch palm full with a finger-tip switch—only 6 oz. Uses AC juice —60 cycle 110 volt AC—or DC with an inexpensive adapter. A sturdy little feller, too.

*Trade Mark

For further information about any of the above products, ask a K&E Distributor or any K&E Branch, or write to Keuffel & Esser Co., Hoboken, N. J.

K+E

partners in creating

For 83 years K&E equipment and materials have been partners of the draftsman, engineer and scientist in shaping the modern world.

KEUFFEL & ESSER CO.

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Drafting, Reproduction, Surveying Equipment and Materials. Slide Rules, Measuring Tapes

NEW YORK • HOBOKEN, N. J.

CHICAGO • ST. LOUIS • DETROIT • SAN FRANCISCO

LOS ANGELES • MONTREAL

saved:

21 man hours

with Hypressure Jenny

preparing a grader for overhaul and repainting

Jenny will make comparable savings of time and money on any cleaning job you have. Jenny cleans so fast—10 times faster than hand methods—you can strip mud, muck and grease from your heavy equipment every day for thorough inspection, servicing and emergency repairs if necessary—right on the job. In addition to keeping heavy machinery, trucks and equipment clean and serviceable, preparing them for overhaul or repainting, Hypressure Jenny is unmatched for the fast and thorough cleaning of bridge and structural work preparatory to painting. Jenny also cleans brick . . . tile . . . stone . . . concrete . . . building exteriors, etc. faster, better and at less cost than by any other method.

Hypressure Jenny is sturdy, portable, safe and easy to use. Ordinary labor can operate it.

Write for free illustrated booklet on 1001 time and money-saving uses. No obligation.

HYPRESSURE JENNY DIVISION

HOMESTEAD VALVE MANUFACTURING CO.

Serving since 1892

P. O. BOX 31 CORAOPOLIS, PA.

(Continued from page 108)

3,187 in the first quarter. Respective dollar values were $6.2 million for the second quarter and $6.0 million for the first.

Replaceable power units for the bull dozers with cable controls had total shipments of 4,425 in the second quarter, with a value of $4.6 million, compared to first quarter shipments of 3,334 units, valued at $3.7 million.

Manufacturers shipped a total of 981 two-and-four wheel, off-highway type tractors in the second quarter, compared to 643 in the first quarter. Dollar value was $14.8 million in the second quarter and $8.6 million in the first.

• **The big one**—Largest single item for any classification in the Bureau of Census report was $74.6 million representing second quarter shipments of 13,645 tracklaying-type tractors. This compared with first quarter shipments of 12,426 units, valued at $67.1 million.

Shipments of trucks (load on back) and off-highway type trailers totaled 694 in the second quarter, 516 in the first. Comparative dollar values were $8.8 million in the second quarter and $8.3 million in the first.

The number of portable well and blast hole drill units shipped went up from 132 in the first quarter to 190 in the second quarter, while the dollar value moved up from $1 million in the first quarter to $1.4 million in the second quarter.

Shipments of other excavating and earthmoving equipment, including self-propelled windrow, endless belt loaders, wheel-mounted and harrow-type discs for road construction, blade-type ditchers and trenchers, and cranes for mounting on tractors totaled 1,773 units valued at $1.4 million. This was during the second quarter. No first quarter comparative figures were given by the Bureau in this grouping.

Business briefs . . .

• **Asphalt output up**—The Bureau of Mines reported that petroleum refineries increased their output of petroleum asphalt 19% in 1950 to meet greater demand. U. S. refineries produced 10.6 million short tons of asphalt last year. Imports of petroleum asphalt, chiefly from Trinidad, totaled only 5,863 tons.

• **Money, not materials**—"In the immediate future, shortage of mortgage funds, rather than any scarcity of building materials, will be the dominant factor in determining how much housing and other light construction will be undertaken," Clyde A. Fulton, president of the National Retail Lumber Dealers Association, asserted.

WHEREVER TRACKS AND TIRES...

GRIP THE GOOD EARTH!

There you'll find Lamson & Sessions' line of high-quality, heavy-duty fasteners servicing all types of mechanized equipment.

Manufacturers, jobbers and repair shops alike simplify ordering and stocking—and are assured of the finest in fasteners —by standardizing on the complete Lamson line.

Why don't you?

Send for this Handy Reference Brochure on Heavy Machinery Fasteners Today!

The LAMSON & SESSIONS *Co.*

General Offices: 1971 West 85th Street, Cleveland 2, Ohio

Plants at Cleveland and Kent, Ohio • Birmingham • Chicago

MAKERS OF FINE FASTENERS SINCE 1866

BOLTS • NUTS • SCREWS • COTTERS • STUDS • RIVETS • SPECIALS • SCREW MACHINE PRODUCTS

—CUT ALONG THIS LINE—

LAMSON LOCK NUTS: Economical, vibration-proof. Can be re-used repeatedly.

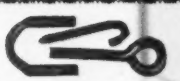
"1035" SET SCREWS: Cup point type, hardened, heat-treated.

COTTER PINS: Steel, Brass, Aluminum and Stainless Steel.

"1035" CAP SCREWS: Hi-Tensile heat-treated steel.

TRACTOR BOLTS: Made to manufacturers' standards.

MILLED STUDS: Concentric, accurate, in a full range of sizes.



"BENT" BOLTS: Including U Bolts, Eye Bolts, Hook Bolts, etc.

Wire Rope Clips: Hi-Center saddles, extra-strength U Bolts.

PIPE PLUGS: Forged Steel, heat-treated.

FOR MORE INFORMATIO ON LAMSON *Money-Sav* FASTENERS . . . . . CHEC COUPON and CLIP THIS STR

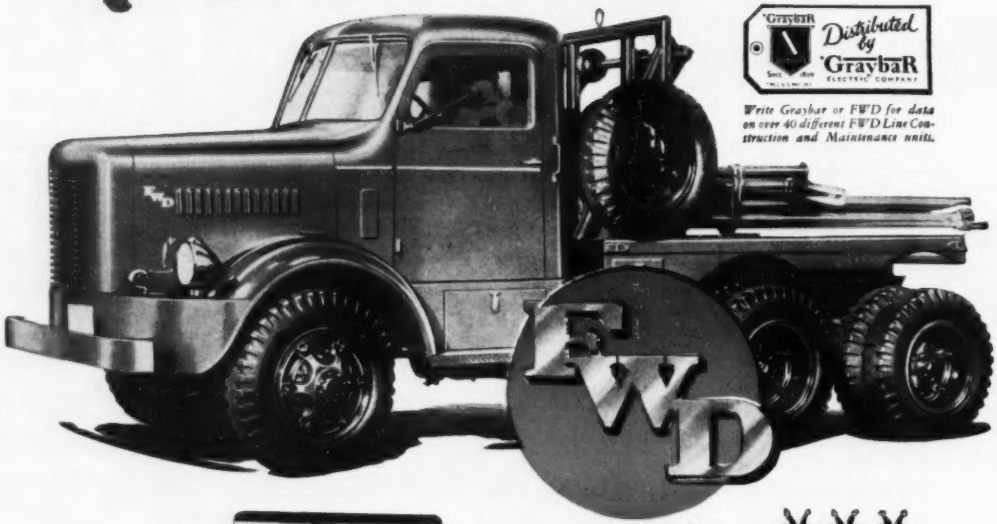
The Lamson & Sessions Compar 1971 W. 85th St., Cleveland 2, Oh

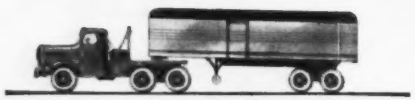
Choose a Multi-purpose FWD 6x6

Choose ability to get more work from Equipment Dollars

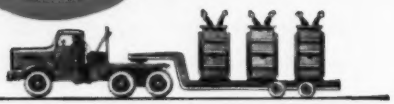
Distributed by GraybaR ELECTRIC COMPANY

Write Graybar or FWD for data on over 40 different FWD Line Construction and Maintenance units.

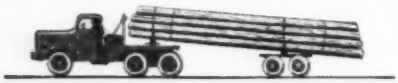




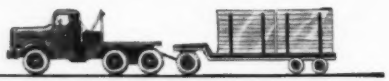
Got a "semi" with a transformer oil purifying unit? Haul it with an H 6 x 6. Fifth wheel recesses in platform.



Transporting heavy transformer is no problem with a low-bed trailer and a powerful FWD H 6 x 6 on the job.



You can take the trouble out of big pole hauling. Bolster fits H 6 x 6 platform quickly and easily.



You can make a train-hitch job for bulky trailer loads. H 6 x 6 platform is free for other equipment.

You'll find FWD H 6 x 6 a sound answer to the need for a multi-purpose utility unit. FWD's extra traction means added safety with better distribution of weight and power — easier going on or off the road. But you'll want to get the complete story on FWD completely-equipped, utility-engineered units.

THE FOUR WHEEL DRIVE AUTO CO., Clintonville, Wis. • Canadian Factory — Kitchener, Ontario

World Wide Sales and Service

America's Foremost Heavy-Duty Truck

UNIT PRICES BID BY CONTRACTORS

Folsom Dam, Central Valley Project, California

The low bid of $29,444,000 which took the contract for the Folsom Dam is 6% below the Government estimate, 9% below the second low bidder and almost 30% below the high of seven joint-venture bidders. This is an earth-fill, multipurpose dam, 23,300 ft long, with a maximum height of 280 ft for dam and auxiliary dykes. It is one of the Central Valley projects under construction by the Sacramento District, Corps of Engineers, on the American River, 3 mi above Folsom. A reinforced concrete spillway will be controlled by radial steel gates. Irrigation and power releases will be through a 24-ft concrete lined tunnel (unit prices for tunnel and for Rose Spring Ditch relocation will be published Oct. 11, 1951). Total cost of the dam is expected to be $45 million and of the whole project $180 million for project dam, power plants and afterbay dam.

The contractor must start work within 10 calendar days of notice to proceed and must complete entire work not later than 1,200 calendar days after receipt of notice to proceed. Liquidated damages are set at $1,000 for each calendar day of delay.

The government will supply penstocks, fixed wheel gates, conduit slide gate, tainter gates, also anchorage, structural bases, hoisting machinery and chains. The contractor must receive at the railhead as delivered and transport to site and install.

The contractor must provide water supply at his expense for construction and domestic consumption. All electric current required by the contractor shall be furnished at his own expense.

All roads used for hauling shall be suitably sprinkled as often as directed to control dust nuisance.

The contractor is to procure concrete aggregate from areas designated.

Wage rates start at $1.70 for laborers, $1.80 for air tool operators, $2.40 for carpenters, $2.575 for structural ironworkers, $2.13-2.85 on construction equipment.

Bidders include:

1C Merritt-Chapman & Scott Corp., New York and The Savin Constr. Corp., East Hartford, Conn.	**$29,444,000**
2 Winston Bros. Co., Foley Bros., Inc., Al Johnson Constr. Co., C. F. Lytle Co., Monrovia, Calif.	**32,321,409**
7 The Arundel Corp., L. E. Dixon Co., The Hunkin-Conkey Constr. Co., American & Pipe Constr. Co., Rhodes-Shafner Constr. Co., Allied Dam Contractors, Inc.	**41,467,551**

Items	Unit	Quantity	Unit prices 1C	2
Diver & care of water	job	1	$864,000	$800,000
Clr firebrk & borrow area 2	ac	900	100.00	200.00
Exc above elev. 215—conc dam	cy	26,000	3.70	7.50
Exc above elev. 215—still. basin	cy	78,000	3.65	1.00
Exc A Riv chan	cy	2,300,000	0.65	0.95
Exc below elev. 215—conc dam & st basin	cy	170,000	4.20	3.50
Exc, tailrace & pilot channels	cy	410,000	3.00	3.50
Exc, Pac Gas & Elec Co dam	cy	42,000	3.50	3.50
Exc, misc	cy	22,000	5.00	3.50
Exc, fndn, wing dams, & dikes No. 5, 7 & 8	cy	380,000	0.60	0.70
Exc, dental, 0-10 ft	cy	7,000	7.00	27.50
10-25 ft	cy	2,000	14.00	40.00
over 25 ft	cy	1,000	21.00	50.00
Waste exc, bor area 5	cy	50,000	0.24	0.60
Exc, bor area 1	cy	1,200,000	0.40	0.45
Exc, bor area 2	cy	4,600,000	0.40	0.45
Exc, bor area 7	cy	300,000	0.60	0.75
Stockpile, rock	cy	750,000	0.60	1.00
Embank, zone A	cy	1,470,000	0.20	0.15
Embank, zone B	cy	2,080,000	0.10	0.07
Embank, zone C	cy	2,100,000	0.15	0.15
Embank, zone D	cy	620,000	0.12	0.15
Embank, zone E	cy	1,100,000	0.70	0.75
Embank, zone F	cy	241,000	1.00	1.20
Embank, zone G	cy	900,000	0.15	0.15
Embank, zone H	cy	63,000	0.12	0.15
Backfill canal, ditches and depressions	cy	10,000	0.75	0.50
Water	M gals	183,000	1.35	1.15
Addl comp rol	hr	1,000	5.00	15.00
Pneumatic tamp	hr	7,000	3.00	3.50
Found. cleanup	sy	50,000	6.00	1.50
Line drilling	sy	55,000	2.50	1.30
Overbur drilling	lf	100	3.50	10.00
NX core drilling	lf	4,000	4.50	7.50
Reaming	lf	160	6.00	6.00
Cmtg & drill out cmt	lf	160	10.00	4.00
Pressure testing	hr	30	40.00	14.00
Drill set-up	ea	40	50.00	70.00
Perens drilling	lf	3,600	0.60	0.90
Drill grout holes	lf	69,000	3.00	3.40
Pressure grout'g	cf	87,000	1.00	2.75
Slushing	cf	2,000	0.50	0.50
Minus 2" sand & gravel	ton	67,000	1.00	1.30
Minus 2" dredge tailings	ton	15,000	1.50	1.40
Minus 3" dre t	ton	64,000	1.50	1.00
2" to 6" dre t	ton	13,000	1.50	1.40
Sand and gravel filters	ton	11,000	2.00	1.90
Rock riprap	ton	166,000	1.50	1.80
Rdwy surf agg	ton	10,000	1.60	2.10
Liq asph, type SC-3 or SC-4	ton	220	27.00	29.00
Mix, spread & finish road mix surf	sy	23,000	0.50	0.10
Mass conc for dam	cy	1,030,000	8.40	10.00
Conc for backfil dental exc	cy	10,000	9.00	20.00
Conc in power & pipe line intakes, spray walls, spillway bridge & piers	cy	17,000	22.00	25.00
Conc in parapet walls & outside stairs	cy	450	88.00	73.00
Conc in stilling basin floor and walls, & constr bridge abut & piers	cy	36,000	14.00	13.50
Conc in retain walls	cy	11,000	14.00	14.00
Conc, misc	cy	3,200	46.00	45.00
Conc, tun'l plug	cy	800	50.00	15.00
Sand-cement grt	cy	1,000	21.00	9.00
Mineral filler	ton	700	27.00	30.00
Fluidifier	lb	25,000	0.25	0.30
Portland cement	bbl	900,000	3.60	3.80
Steel reinf	lb	4,400,000	0.10	0.12
Dril & grouting anchor bars	lf	90,000	1.85	1.70
Structural steel	lb	1,030,000	0.17	0.23
Misc iron & stl	lb	60,000	0.65	0.65
Expansion rockers & fixed pedestals for spillway bridge	lb	32,000	1.25	0.80
Cop water stops	lb	22,000	1.70	1.10
Timber	M fbm	40	325.00	420.00
8" perf C M pipe	lf	1,330	3.50	2.00
10"	lf	1,830	3.90	2.30
12"	lf	2,320	4.25	2.70
21"	lf	2,170	7.00	4.00
10" C M pipe	lf	190	3.40	2.50
21"	lf	1,200	6.50	4.00
8" perf V C pipe	lf	4,000	2.50	2.10
8" V clay pipe	lf	1,000	2.00	1.40
15" semi-circ VC pipe	lf	5,100	5.00	2.30
84" steel pipe	lf	4,000	85.50	67.00
60" steel pipe	lf	180	84.75	66.00
42" steel pipe	lf	3,500	41.75	30.00
18" steel pipe	lf	445	15.50	7.50
3½" black st pipe, sch 40	lf	4,000	3.35	1.50
2½"	lf	9,300	2.50	1.00
Misc pipe & fittings	lb	4,000	2.00	0.60
60" g vlv, 120#	ea	3	30,000	25,000
42" g vlv, 35#	ea	2	7,500	3,400
42" g vlv, 120#	ea	2	10,000	8,900
18" g vlv, 120#	ea	1	2,500	2,250
12" g vlv, 120#	ea	1	1,600	1,450
8" gate valve	ea	3	300.00	190.00
6" gate valve	ea	2	200.00	140.00
4" gate valve	ea	2	150.00	90.00
84" exp coupl'g	ea	6	3,500	4,000
42" exp coupl'g	ea	13	1,000	1,300
18" exp coupl'g	ea	1	500.00	500.00
84" flex coupling	ea	2	500.00	340.00
60" flex coupling	ea	3	400.00	280.00
42" flex coupling	ea	5	300.00	200.00
18" flex coupling	ea	1	100.00	60.00
Air release & vacuum valve	job	1	3,000	2,930
Flow meas equip No Fork-Natoma water sys	job	1	35,000	39,000
Div tunnel bulkhead gate, guides & frame	job	1	80,000	97,000
Div tunnel gate hoist struc & acces	lb	20,000	0.50	0.72
Inst embedded penstocks	lb	414,000	0.25	0.08
Penstock stop log guides, seats & anchors	job	1	100,000	90,000
Inst penstock fixed-wheel gates & hoists	lb	687,000	0.10	0.07
gate guides, fr & anchors	lb	141,000	0.15	0.11
Penstock gate erection struct metalwork	lb	3,000	0.80	0.36
hoist & transfer str metwk	job	1	17,000	10,000
bypass piping	job	1	22,000	12,300
hst oil sup sys	job	1	30,000	1,500
Trashrk metwk	lb	542,000	0.25	0.24
Inst conduit slide gates & acces	lb	1,900,000	0.10	0.065
gt oper equip	job	1	60,000	39,000
Conduit bulkhead gate & lifting beam	job	1	32,000	31,000
gate frames, guides & acces	job	1	84,000	131,000
Conduit gate bypass piping	job	1	20,000	6,000
Inst tainter gates, mach & acces	lb	2,544,000	0.10	0.09
Tower	job	1	150,000	74,000
Twr drain sys	lb	11,000	0.30	0.46
Gallery dr sys	lb	15,000	0.15	0.50
Dom water sup	job	1	3,500	3,700
Sewerage sys	job	1	17,000	9,500
Sump pump sys	job	1	13,000	3,800
Ventilating sys	job	1	2,000	5,700
Comp air sys	job	1	7,000	7,200
Heating system	job	1	1,000	2,000
Power, light & telephone sys	job	1	221,187	248,000
Erect gantry cr	job	1	25,000	83,000
Gantry crane rail	lb	160,000	0.12	0.09
Hoist & appurt	ea	1	3,000	3,000
Safety treads	lf	1,900	3.00	2.70
Floatwell & appurt	job	1	5,000	4,200
Parapet handrail	lf	2,800	6.00	7.00
Pipe handrail	lb	18,000	0.50	0.76
Drains for rdy & spill'ay bridge	job	1	2,000	2,250
Plexom'er tubes	job	1	4,000	850.00
Port fire ext	job	1	500.00	350.00
Guard railing	lf	7,530	2.00	2.00
Fence	lf	45,000	0.25	0.42
Relocate telephone line	job	1	2,000	1,700
Temp water sup for Folsom Prison	job	1	150,000	63,000
Flood lighting	job	1	7,000	7,000
Guard person'l	job	1	132,400	80,000
Pumping plant	job	1	165,000	150,000

Worth its weight

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Johns-Manville

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Are you finding it increasingly difficult, in the face of today's economy, to undertake needed water-line construction?

If so, you may find—as other planners do—that Transite* Pressure Pipe can help provide a practical answer to your problem. For this pipe, in addition to its continuing, long-term savings, offers an opportunity for economies in installation *that may go far in helping you contend with rising costs and manpower shortages.*

Transite Pressure Pipe offers a combination of advantages which speed and facilitate water main installations all along the line—from the time the pipe is first received, to final placement of the line in service and restoration of normal street traffic. Not only do pipe laying crews find this modern pipe easy to work with, but its unique features make for a more compact, efficient and economical operation in virtually all the construction phases of water-line extension projects.

Economies start as soon as a shipment of Transite Pipe is received. Because it is light in weight, unloading and other handling operations are simplified. More footage can be carried per truckload, trucking costs are lowered, and distribution on the job site is faster. And except for the larger diameters of pipe, the sections can be lowered into the trench by hand, or with the aid of rope slings.

Assembly, too, is both rapid and economical. The flexibility of Transite's joints permit the pipe to be laid around wide curves without the need for special fittings. The Simplex Couplings require no calking or hot compounds; they are quickly and easily assembled to provide lastingly tight joints. *And with this pipe you can check for proper assembly immediately after the pipe ends are joined.*

Makes pipe-laying an assembly-line operation

This combined feature of rapid assembly and assurance of joint-tightness as fast as the line is laid, is the key to an important Transite advantage: it means that trench excavation, pipe laying, and backfilling operations can follow in quick succession—often under the supervision of one foreman. It makes pipe-laying virtually an assembly-line operation in which the trench can be closed in a minimum of time. This assures more economical use of excavation and earth handling equipment, reduces the expense and hazards of long stretches of open trench, and helps button-up the job with the least possible expenditure of time, labor and money.

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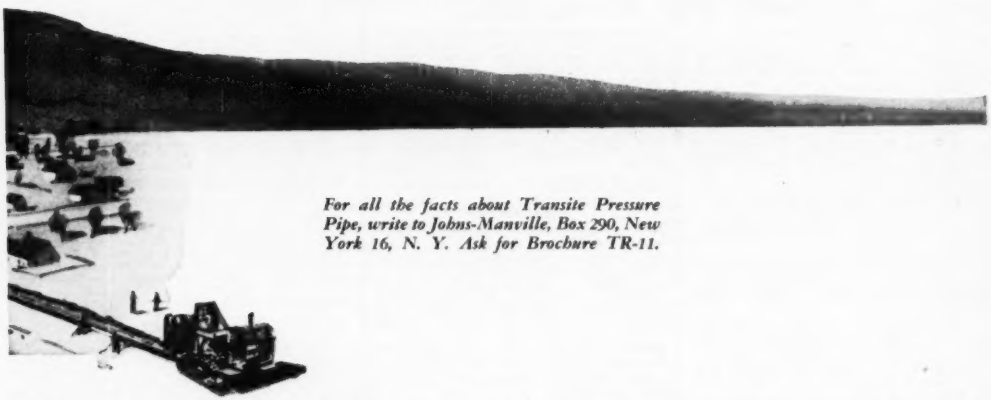

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

Conn., Middletown—OCCUPATIONAL THERAPY—B.A. 10/3—State P. Wks. Comr., State Office Bldg., Hartford, occupational therapy bldg., Connecticut State Hospital B/A -1-93, $300,000. Plans deposit $25. Seb. J. Passanesi, 164 Court St., archt. CD 2/7/49.

† **Me., Winter Harbor**—BARRACKS—B.A. 10/4—First Naval Dist., 495 Summer St., Boston, Mass., temporary barracks and mess hall, Spec. 30276. CD 9/14.

N. H., Meredith—B.A. 10/17—Town, Dpt. P. Wks., Town Hall, (selected list bidders) Contr. 1, sewage works equip. 1—pump equip., 2—venturi meter, 3—commutator, 4—chlor-equip.; Contr. 2, sewage treatment plant, $800,000. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs. CD 4/16/46.

BIDS ASKED—BUILDINGS

Mass., Lincoln—SCHOOL—B.A. 10/11—Town, elementary school. Plans deposit $15 refundable, to bidders, $7.50 refundable non bidders. CD 7/13.

SOON LETS CONTRACT—BUILDINGS

Mass., Shrewsbury—LABORATORY—Worcester Foundation for Experimental Biology, 222 Maple St., soon lets contract, laboratory, G. Adolph Johnson, 390 Main St., Worcester, archt. CD 8/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Lavigne & Smith, Inc.**, 18 Taunton Ave., East Providence, R. I. LB **$34,565**, dredging in Josias River, CIVENG 19-016-52-5, MAINE, U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Sept. 11. CD 9/6.

Samuel Aceto & Co., 40 Preble St., Portland, Me. LB **$463,450**, laying sewer pipes, etc., WATERVILLE, ME. City, Sewerage Dist., 44 Main St., Waterville, Me. Bids Sept. 11. CD 9/4.

D'Alessandro & Crognale, Inc., 347 Huntington Ave., Boston, Mass., LB. **$142,123**, Contr. 1, laying pipe, furnish and lay sewer pipe, force mains, etc.;

Halloran-Hollen & Riva, 1 Washington Ave., Providence, R. I., LB. **$506,500**, Item No. 1, **$505,500**, alt., Contr. 2, sewage treatment plant and sewage ejector station, incl. equip., BURLINGTON, VT., City, Bd. Str. Comrs., City Hall, Burlington, Vt. Bids Sept. 13. CD 8/9.

NEW HAMPSHIRE—State Dpt. P. Wks. & Hys., Concord,

Arthur Whitcomb Constr. Co., Inc., 725 Main St., Keene, N. H., LB. **$71,319**, 58 ft. rein.-con. arch bridge and 0.424 mi. grading, drainage, surf, tr. grav. N.H. 13 in town of Wilton. R. H. Whitaker, c/o owner, const. engr. Bids Sept. 13.

MASSACHUSETTS—Commonwealth of Mass., Dpt. Pub. Wks., 100 Nashua St., Boston,

Del Virgillio, 388 Newall St., Pittsfield, Mass. LB **$68,350**. hy. work, Pittsfield.

Frank J. Shields, Inc., Central St., Southbridge, Mass. LB **$66,801**. hy. reconstr. Grafton, Bids Sept. 11. CD 8/29.

BUILDINGS

LOW BIDS AND CONTRACTS

Turner Constr. Co., 38 Newbury St., Boston, Mass. CA **$110,000**. 6th floor addn. to PLANT Bldg. 42, CHICOPEE, MASS. Fisk Tire Div. U. S. Rubber Co., 154 Grove St., Chicopee, Mass.

S. & A. Allen Constr. Co., Inc., 9 Newbury St., Boston, Mass. LB **$892,880**. MUNICIPAL BLDG., Ward 10, 1487 Tremont St., ROXBURY, MASS. City, Pub. Welfare Dpt. & Park Dpt., City Hall Annex, Boston, Mass. Bids Sept. 7. CD 8/28.

Brick & Concrete Constr. Co., 11 Hobson St., Brighton, Mass. LB **$409,000**, est. $300,000 SCHOOL, Homestead Area, Weymouth Landing, WEYMOUTH, MASS. Town, Supt. Schools, 89 Middle St., Weymouth, Mass. Bids Sept. 12. CD 8/28.

Halloran, Hollen & Riva Co., 1 Washington St., Providence, R. I., CA **$750,000**. TELEPHONE bldg., Narragansett Exchange, Main and Oak Sts., WAKEFIELD, R. I. New England Telephone & Telegraph Co., 234 Washington St., Providence. Jenks & Ballou, 2600 Industrial Trust Bldg., Providence, engrs.

Amitio Trete, 17 Olive St., New Haven, Conn., LB. **$90,000**, TRUCK TERMINAL and OFFICE, New Haven Ave., MILFORD, CONN. Middle Atlantic Transport Co., Inc., 975 W. Main St., New Britain, Conn. Bids July 20. CD 7/20.

Gellatly Constr. Co., 181 Sylvan Ave., Bridgeport, Conn., CA. **$750,000**, constr. North PLANT, PLAINVILLE, CONN. Trumbull Electric Mfg. Co., 41 Woodford Ave., Plainville, Conn. CD 9/12. under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **New Jersey**—B.A. About 10/4—U.S. Eng., 80 Lafayette St., New York, 13, N. Y., dredging to depth of 25 feet below mean low water involving removal of approx. 160,000 cu. yd. place measurement of all material except ledge rock from South Channel of Raritan River in Middlesex Co., Serial No. CIVENG 30-075-52-13.

BIDS ASKED—BUILDINGS

† **Pa., New Cumberland**—BOILER PLANT—B.A. 10/2—U. S. Eng., 24 St. and Maryland Ave., P.O. Box 1715, Baltimore 3, Md., boiler plant and site imprvs., New Cumberland General Depot, Serial No. Eng 18-020-52-7. Plans deposit $10. CD 2/2.

N. Y., Alfred—INDUSTRIAL—B.A. 10/3—Bureau Contracts & Accounts, Albany, industrial bldg. at New York State Agricultural and Technical Institute, Alfred University. Plans deposit $30. CD 6/29/45.

N. Y., Perrysburg—CLINICS, etc.—B.A. 10/3—Bureau Contracts & Accounts, Albany, clinic operating suite and administration bldg. at J. N. Adams Memorial Hospital. Plans deposit $30.

N. Y., Sidney—BARRACKS—B.A. 10/3—Bureau Contracts & Accounts, Albany, new Barracks Bldg. 6, 7 and 8 at Troop "C" State Police Barracks. Plans deposit $30. CD 2/15/46.

† **Md., Aberdeen Proving Ground**—CHARGE LABORATORY—d.A. On Or About 10/5—U. S. Eng., 24 St. and Maryland Ave., P.O. Box 1715, Baltimore, Zone 3, hollow charge laboratory, approx. 35 mi. northeast of Baltimore. Eng. 18-020-52-6. CD 11/17.

† **Md., Bethesda** — CHEMICAL — B.A. 10/9 — General Services Admin., Pub. Bldgs. Service, 19 and F Sts. N. W., Wash. 25, D. C., Chemical Bldg. (25), Sodium Bldg. (26) and Toxic and Inflammable Gas Shed (27) at National Institutes of Health, Proj. 18-063. CD 5/27/48.

N. J., Trenton—SCHOOL—B.A. 10/9—Hamilton Twp. Bd. Educ., 2069 Greenwood Ave., school, S. Olden and Woodsides Ave. $441,000. Bids 9/5 rejected, L.B. **$302,000**. CD 9/11, under LB.

SOON LETS CONTRACT—BUILDINGS

▲† **N. Y., Tonawanda**—PLANT, FOUNDRY—Chevrolet Motors Div., General Motors Corp., 3044 W. Grand Blvd., Detroit, Mich., soon lets contract plant, foundry, $20,000,000. H. E. Beyster & Assoc., 232 Grand River, Detroit, Mich., archts. CD 7/24.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects inviolved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Gibson-Cushman, Inc., Homan Ave., Bay Shore, N. Y., LB **$54,000**, hydraulic fill and beach grass planting, beach protection at Tiana Beach, Suffolk Co.

James P. Passero & Co., 178 Grafton St., Rochester, N. Y. LB **$44,965**, est. $45,940, Gates 3 and 4 Barge Canal Harbor Dam, City of Rochester, M-51-5, Monroe Co.

South Shore Contg. & Dredging Co., 100 West Ave., Patchogue, N. Y., LB **$74,434**, est. $80,000, beach protection at Village of Ocean Beach, Suffolk Co., NEW YORK. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Sept. 12. CD 8/31.

NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y.

Eastern Rock Products, Inc., 404 Court St., Utica, N. Y. LB. **$71,359**, est. $87,000. 2.17 mi. Rome-Taberg S.H. 563, Proj. FA. RC. 51-61, Oneida Co. cancelled bids to have been opened Sept. 12, imprv. FA. SS. 51-23, Montgomery Co.; FA. SS. 51-24, Orleans Co.; FA. RC. 51-66, Chemung and Tioga Counties; FA. RC. 51-51, Nassau and Suffolk Counties. CD 8/31.

John Roman, Inc., 103 E. 125 St., New York 35, N. Y. CA. **$162,325**, reconstruction roadway and footwalks on movable and fixed spans of Third St. Bridge, BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Aug. 22. CD 8/2.

▲ **NEW JERSEY and PENNSYLVANIA**—Delaware River Toll Bridge Comn., 526 broad Street Bank Bldg., Trenton, 8, N. J.,

Johnson, Drake & Piper, Inc., 86 Trinity Pl., New York, N. Y., LB, **$3,141,335**, est. $14,794,000, substructure of 3 bridges over Delaware River, bridges to link Delaware Water Gap, Pa. with Dunnfield, N. J.; Portland, Pa. and Columbia, N. J. and Milford, Pa. with Montague, N. J. Bids Sept. 14. CD 8/21.

NEW JERSEY—New Jersey Turnpike Auth., 85 Prospect St., Trenton,

United Advertising Corp., 354 Park Ave., Newark, N. J., CA, **$249,485**, Contr. 76, furnishing, erecting traffic signs. Bids Aug. 14. CD 7/24.

George M. Brewster & Son, 275 Fort Lee Rd., Bogota, N. J., CA, **$497,987**, paving connections from Lincoln Tunnel to N. J. Turnpike, NEW JERSEY, Port of New York Auth., 111 8 Ave., New York, 11, N. Y. Bids Sept. 10. CD 9/6.

▲ **Eastern Eng. Co.**, 4 N. Carolina Ave., Atlantic City, N. J., LB. **$4,691,998**, main sewage treatment plant Primary Treatment; general construction Contr. 5, CAMDEN, N. J. City, Purch. Bd., City Hall, Camden, N. J. Bids Sept. 12. CD 8/15.

Agabiti Brothers, 125 Swan St., Trenton, N. J., LB, **$65,847**, repaving 1,860 ft. Spruce St. and Ewingville Rd., Ewing Twp., TRENTON, N. J. Mercer Co., Dpt. Road Repairs, Court House, Trenton, N. J. Edward L. Mount, co. engr.

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Donald B. Stabler, 635 Lucknow Lane, Harrisburg, Pa., CA. **$646,107**. wid'n. 41,361 ft. roadway with crushed aggregate base and bit. surf. new and existing base, Centre Co. Bids Aug. 31, Awarded Sept. 13. CD 9/5, under LB.

General State Auth., 18 and Herr Sts., Harrisburg, Pa., rejected bids May 2, sewage treatment plant, L.B. **$258,236**; pumping stations, L.B. **$96,775**; sewage collection sys. and drainage, L.B. **$64,304**, MAYVIEW, PA. CD 5/8, under LB.

General State Auth., 18 and Hell Sts., Harrisburg, Pa., rejected bids July 18, sanitary sewerage sys. imprvs., at Woodville State Hospital, WOODVILLE, PA. L.B. **$64,230**. Will re-advertise. CD 7/24, under LB.

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Paul V. Kebert, Rte. 6, Meadville, Pa., LB. **$110,862**, I-beam bridge and 1,950 ft. roadway with crushed aggregate base and bit. surf., L. R. 61048 (1-B). over Hemlock Creek, Warren Co.

Brown, Davis & White, Box 203, Lebanon, Pa., LB. **$95,004**, steel beam floor I-bridge and grading, drainage 2,250 ft., over Tonoloway Creek, L. R. 29004 (4-5), Fulton Co. Bids Sept. 14. CD 8/29.

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Kingston Contg. Co., Lattimer Mines, Pa., LB. **$175,476**. crushed stone base and bit. surf. 1,993 ft., L. R. 15002 (1), Chester Co.

Julius Krummell, Canadensis, Pa., LB. **$109,863**, crushed aggregate base and bit surf. and metal plate arch. 6,643 ft. T. R. 949, Elk Co. Bids Sept. 14. CD 8/29.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,

T. B. Gatch & Sons, Inc., 5928 Belair Rd., Baltimore, Md. LB **$112,415**. road resurf., wid'n., Contr. H 346-415, Harford Co.

McGuire & Rolfe Inc., 1401 First St. S.E., Wash., D. C. LB **$112,838**, road resurf., wid'n., Contr.

(Continued on page 121)

Two of the 135 Fenestra Metal Door Units (Door, Frame, Hardware) in Robert N. Mandeville High School, Flint, Mich. *Architect:* Bennett & Straight, Dearborn, Mich. *Contractor:* Karl B. Foster, Flint, Mich.

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Sewer Pipe (Concrete)	Segment Sewer Block	Stove Pipe
Vitrified Liner Plates	Meter Boxes	Chimney Tops
Tylox Flexible Rubber Coupled Vitrified Pipe	Ship Lap Wall Coping	Chimney Pots
Aerodrane Filter Block	Septic Tanks	Fire Brick
	Drain Tile	Fire Clay

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• UNIVERSAL SEWER PIPE CORPORATION
• UNITED STATES CONCRETE PIPE COMPANY

• ***GENERAL OFFICES*** • **1500 Union Commerce Building** • **CLEVELAND 14, OHIO**

(Continued from page 118)

P 698-515, Prince George's Co. Bids Sept. 11. CD 8/30.

Frank L. Carozza Constr. Co., 511 Park Ave., Baltimore 1, Md. LB **$829,415.** 13,500 ft. 48 in. precast concrete water main Mt. Royal Transmission Main, BALTIMORE, MD. City, Bureau Water Supply, 503 Municipal Bldg., Baltimore 2, Md. Bids Sept. 13.

▲ **Whiting Turner Contg. Co.**, 305 National Marine Bank Bldg., Baltimore, Md. LB Part 1 **$2,093,883.** LB Part 2. **$2,145,536.** Russell Street Viaduct, approx. 1,737 ft. in length, 89 ft. wide, elevated bridge sect., earth filled ramp, viaduct sect. on piles, BALTIMORE, MD. City, Bureau Hys., 303 Municipal Bldg., Baltimore 2, Md. Bids Sept. 13. CD 8/29.

George A. Peters Co., 2116 Maryland Ave., Baltimore 18, Md. LB **$148,500.** piping in new utility tunnel and power plant, Rosewood State Training School, OWINGS MILLS, MD. State, Dpt. Pub. Imprvts., 506 Park Ave., Baltimore 1, Md. Eiser & Akers, 916 N. Charles St., Baltimore, Md., engrs.

BUILDINGS

LOW BIDS AND CONTRACTS

Edenwald Contr. Co., 1061 E. Tremont Ave., New York 60, N. Y. CA. **$313,474,** construct street and yard imprvs. for Pomonok HOUSES, Proj. NYC-22 in area bounded by 71 Ave., Kissena Blvd., 65 Ave. and Parsons Blvd., Queens Boro, FLUSHING, N. Y. New York City Housing Auth., 63 Park Row, New York 38, N. Y. Bids Aug. 21. CD 7/30.

▲ **Barrington Gardens, Inc.**, Browning Rd., Barrington, N. J., Separate Contracts, **$2,500,000,** RESIDENTIAL DEVELOPMENT, Gloucester Pike, BARRINGTON, N. J. Dante D'Anastasio, 1815 Federal St., Camden, N. J., archt.

Henry M. Taggart, Inc., 1924 Chestnut St., Phila., Pa., LB **$567,700,** COURT HOUSE and CITY HALL addns., alterations, CAMDEN, N. J. Bd. Freeholders Camden Co., City Hall, Camden, N. J. Bids Sept. 11.

James McGraw Co., 16 S. Broad St., Phila., Pa., CA **$867,699,** RAILROAD STATION ALTERATIONS, Broadway, CAMDEN, N. J. Pennsylvania R. R. Co., 30 and Market Sts., Phila., Pa. CD 8/28.

▲ **Andrew Christensen & Son, Inc.**, 225 West Grand St., Elizabeth, N. J., LB, **$1,183,864,** general constr. new MEN'S GROUP, WOMEN'S Group and BERGEN Group at State Village of Epileptics, Montgomery Twp. SKILLMAN, N. J. N. J. Dpt. Institutions & Agencies, State Office Bldg., W. Hanover St., Trenton, N. J. Bids Sept. 17. CD 8/21.

Edward Nelson, 202 King Ave., Westmont, N. J., Separate Contracts, **$300,000,** RESIDENTIAL DEVELOPMENT, WESTMONT, N. J. Lester H. Weckesser, Wallworth Apartments, Haddonfield, N. J., archts.

Serody & Serody, 8322 Brookside Rd., Elkins Park, Pa., Separate Contracts. Approx. **$400,000.** RESIDENTIAL DEVELOPMENT, Cumberland Rd., etc. ABINGTON, PA. Christian H. Fries, 3701 N. Broad St., Phila., Pa., archt.

Ashley J. Altman, 215 S. 15 St., Phila., Pa., Separate Contracts. **$300,000.** RESIDENTIAL DEVELOPMENT, Salisbury Rd., CHELTENHAM, PA.

Cunningham Constr. Co., 6231 Market St., Phila., Pa., Separate Contracts. Approx. **$300,000.** RESIDENTIAL DEVELOPMENT, Hathaway Lane, HAVERTOWN, PA. H. Barrett Pennell, 33 E. Wynnewood Rd., Wynnewood, Pa., archt.

Peter S. Mozino, 5100 State Rd., Drexel Hill, Pa., Separate Contracts. **$784,000.** RESIDENTIAL development. Robert Lane and Golf View Rd., HAVERTOWN, PA.

J. Wayne Ortlip, 333 Northcroft Rd., Springfield, Pa., Separate Contracts. **$300 000.** RESIDENTIAL DEVELOPMENT, Steel Rd., HAVERTOWN, PA.

▲† **Hughes Foulkrod Co.**, 1505 Race St., Phila. Pa., LB. **$4,114,341.** 3 WAREHOUSES, site preparation and grading, NEW CUMBERLAND, Pa. Dpt. Army, 121 N. Broad St., Phila., Pa. H. A. Kuljian & Co., 1200 N. Broad St., Phila., Pa. archt. Bids Sept. 14.

Bender Homes, Inc., 1817 S. 4 St., Phila., Pa., Separate Contracts. **$300,000.** RESIDENTIAL DEVELOPMENT, Nesper and Hawthorne Sts., PHILA. PA. I. W. Levin, 1531 Belmont Ave., Phila., Pa., archt.

Felix Clauss & Sons, 4400 D St., Phila., Pa., CA. **$369,-150.** Abraham Lincoln HIGH SCHOOL ATHLETIC FIELD, PHILA. PA. Bd. Educ., 21 and Winter Sts., Pa. CD 7/18.

James J. Clearkin, 4450 Deiper St., Phila. Pa., CA. Approx. **$300,000.** CHAPEL and MOTHER HOUSE, and road constr., PHILA. PA. Missionary Sisters of The Most Blessed Trinity 3501 Solly Ave., Phila. Pa. Bids Aug. 15. CD 8/6.

M & H Constr. Co., 16 S. Broad St., Phila. Pa., CA. **$427,000.** RESIDENTIAL DEVELOPMENT, Terry St., PHILA. PA. Leon Housing Corp., c/o Maurice Kushin, Commercial Trust Bldg., Phila. Pa. James G. Durham, 34 S. 17 St., Phila. Pa., archt.

John P. Hallahan, 10 S. 18 St., Phila., Pa., CA. **$267,000.** 1 story 122x162 ft., brick PLANT OFFICE bldg. addn., PHILA. PA. S.K.F. Industries, Front St. and Erie Ave., Phila., Pa. Bolton, Martin & White, 262 S. 17 St., Phila., Pa., archts.

J. J. Kelly Co., Stenton Ave. and Allens Lane, Phila. Pa. Separate Contracts. **$300,000.** RESIDENTIAL DEVELOPMENT, Lynnewood Rd., PHILA. PA.

D. Litvin, 7240 N. 21 St., Phila. Pa., Separate Contracts. Approx. **$300,000.** RESIDENTIAL DEVELOPMENT, Overington St., PHILA. PA. Henry S. Berg, 1411 Walnut St., Phila. Pa., archt.

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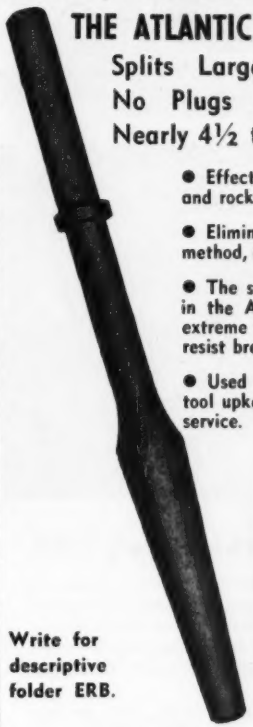

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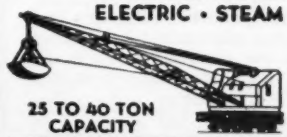

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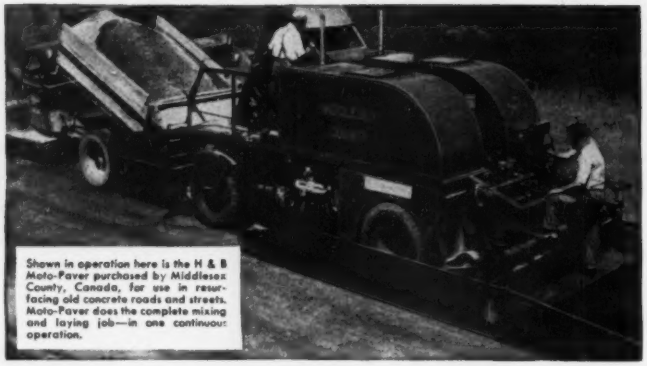

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S. Yellin & Son, 222 N. 11 St., Phila. Pa., CA. $300,000. BANK, PHILA. PA. Liberty Federal Savings & Loan Assoc., 237 N. Broad St., Phila., Pa. John E. Sindoni, 2245 S. 21 St., Phila. Pa., archt.

Louis Sheffit, 1321 Arch St., Phila. Pa., Separate Contracts. $300,000. RESIDENTIAL DEVELOPMENT, Pine Rd. PHILMONT, PA.

Girard Constr. Co., County Bldg., Media, Pa., Separate Contracts. Approx. $300,000. RESIDENTIAL DEVELOPMENT, Villanova and Swarthmore Aves., RIDLEY PARK, PA.

Earl L. Cump, 251 Park Ave., Chambersburg, Pa., LB $811,644, general constr. construct Boys' COTTAGES at Scotland School for Veterans' Children, SCOTLAND, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids Sept. 12. CD 9/5.

Millison Constr. Co., Inc., 217 W. Monument St., Baltimore, Md. LB. $302,633. ADMINISTRATION BLDG., incl. utilities, toll collection facilities, water treatment plant, Chesapeake Bay Bridge, Contr. CBB 13-1-87, Sandy Point, Anne Arundel Co., MARYLAND. State Rds. Comn., 108 E. Lexington St., Baltimore 2, Md. J. E. Greiner Co., 1201 St. Paul St., Baltimore, Md., engr. Bids Sept. 4. CD 8/20.

▲ **Kirby & McGuire,** 2518 Greenmount Ave., Baltimore, Md. general contract rehabilitation Baltimore Signal Corp DEPOT, OBRECHT BLDG. at Harbor Field, DUNDALK, MD.•••**Drummond & Co.,** Milford Rd. & N. H. R. R., Baltimore, Md. blt. roads, surf.•••**H. T. Campbell Sons,** Towson, Md. railroad siding••• **Grinnel Co.,** 2402 W. Fayette St., Baltimore, Md. Sprinkling sys. U. S. Eng., 24 and Maryland Ave., Baltimore 18, Md. Total est. cost $1,000,000. CD 8/21.

Sturm & Co., 4533 N. Front St., Phila., Pa., LB $520,000, SCHOOL, CLAYMONT, DEL. Claymont Special School Claymont, Del. Bids Aug. 15. CD 8/7.

Congregation Beth Sholom, c/o Aaron Finger, du Pont Bldg., Wilmington, Del., rejected bids SYNAGOGUE and SCHOOL, WILMINGTON, DEL. $520,000. CD 5/2.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Fla., Cocoa**—HARBOR FACILITIES—B.A. 10/3—U. S. Eng., 575 Riverside Ave., Jacksonville, harbor facilities, Air Force Base Missile Test Center Patrick Air Force Base, near here, Eng 08-123-52-40. Plans deposit $5. CD 4/4.

Fla., Miami—B.A. 10/3—City, c/o Div. Engineering, 3342 Dinner Key Dr., Miami, storm sewers and pumping station in District, SR-317. Plans deposit $50. CD 11/8/44.

Ga., Atlanta—HANGAR—B.A. 10/3—Fulton Co., Court House, addnl. hangar facilities at Fulton County Airport.

† **Fla., Panama City**—EXPLOSIVES MAGAZINES—B.A. 10/4—Dpt. Navy, Officer In Charge Constr., Box 365, Naval Base, S. C., constr. 2 earth covered magazines at Navy Mine Countermeasures Station. Extended date. CD 9/11.

† **Ga., Fort Benning**—ROAD—B.A. 10/4—U. S. Eng., Post Office Bldg. Savannah, relocation Dixie Rd., Lawson Air Force Base, Eng. 09-133-52-16.

† **Tennessee**—B.A. 10/4—U. S. Eng., P. O. Box 97, Memphis, Zone 1, approx. 3.1 mi. channel clearance involving approx. 190,000 cu. yd. excav., along Loosahatchie River in Shelby Co., from 4 mi. northwest of Raleigh approx. 1,500 ft. above Raleigh-Millington Rd. and exten. upstream approx. 3.1 mi., Serial No CIVENG 40-041-52-25.

Va., Newport News—TERMINAL BLDG.—B.A. 10/4—Peninsular Airport Comn., Newport News, airport terminal bldg. and control tower.

† **Fla., Orlando**—BUILDINGS—B.A. 10/5—U. S. Eng., 575 Riverside Ave., Jacksonville, 5 buildings at Pinecastle Air Force Base, near here, Eng 0-123-52-42. Plans deposit $30. CD 1/13.

Tenn., Chattanooga—HANGAR—B.A. 10/9—City, City Hall, hangar at Lovell Feld. CD 5/17, under LB.

Tenn., Cookeville—NATURAL GAS SYSTEM—B. A. 10/9—City, natural gas sys. Barnard & Burke, Triad Bldg., Baton Rouge, La., engrs. CD 8/15/50.

Tenn., Harriman—GAS SYSTEM—B.A. 10/9—City, natural gas sys. Approx. $300,000. Barnard & Burk, Triad Bldg., Baton Rouge, La., engrs.

† **Fla., Panama City**—TRANSFORMERS—B.A. 10/10—Dpt. Navy, Officer In Charge of Construction, Box 365, Naval Base, S. C., installing 3 government furnished 100 KVA transformers. Plans deposit $10.

† **Fla., Panama City**—B.A. 10/10—Sixth Naval Dist., Charleston, S. C., Navy Mine Counter-Measures Station, 300 kva sub-station, NOY 29399, Spec. 31091. Plans deposit $10.

Ga., Columbus—AIRPORT—B.A. 10/10—Muscogee Co., airport addns. $200,000. Robert & Co. Assoc. 96 Poplar St. N. W., Atlanta, engrs. CD 10/8/46.

† **N. C., Cherry Point**—APRONS, etc.—B.A. 10/10—Dpt. Navy, Officer In Charge of Constr. Box 365, Naval Base, S. C., paving parking aprons and taxiways, NOY 29386. Plans deposit $50.

Tenn., Paris—B.A. 11/1—HOTEL—State Dpt. Conservation, c/o Hart & McBryde, archts., 2419 West End Ave., Nashville, hotel Paris Landing State Park. $500,000.

Fla., Miami—B.A. 12/19—City, City Hall, refuse incinerator plant. Maurice H. Connel & Assoc., Langford Bldg., engrs. Extended date. CD 6/21.

BIDS ASKED—BUILDINGS

Miss., Macon—COURT HOUSE—B.A. 10/3—Noxubee Co., court house, Johnston, Jones & Reynolds, Starkville, archts. CD 3/2.

Miss., Louisville—CHURCH—B.A. 10/3—First Baptist Church, c/o N. W. Overstreet & Assoc., archts., 201 N. Lamar St., Jackson, church. Bids 7/12 rejected. CD 6/28.

N. C., Greenville—B.A. 10/3—East Carolina Teachers College, c/o Eric G. Flannagan, archt., Henderson, library. CD 11/3/49.

Va., Hampton—HIGH SCHOOL—B.A. 10/3—Elizabeth City Co., Hampton, construct Negro Junior High School. $500,000. Williams, Caile & Blanchard, Newport News, archts.

Ga., Royston—HOUSING—B.A. 10/4—Royston Housing Auth., Royston, 54 housing units. Approx. $450,000. Abreu & Robeson, Walton St. N.W., Atlanta, archts. CD 6/26/50.

Fla., Tampa—SCHOOL—B.A. 10/5—Regional Office, U. S. Housing and Home Finance Agency, 114 Marietta St., Atlanta, Ga., school for personnel of MacDill Air Force Base, $400,000. Norman F. Six, Hillsboro Hotel Lobby, archt. CD 7/16.

† **Fla., Panama City**—LABORATORY, etc—B.A. 10/9—Sixth Naval Dist., Charleston, S. C., laboratory, shops and warehouses at Navy Mine Countermeasures Station, NOY 28294, Spec. 29945. Plans deposit $30.

Fla., Orlando—CITY HALL—B.A. About 10/10—City, 8 story city hall. Approx. $500,000. Richard Boone Rogers, 14 E. Church St., archt. CD 8/10.

Ga., Atlanta—SCHOOL—B.A. 10/11—City, high school gymnasium. Plans deposit $25. Wm. J. J. Chase & Assocs., 140 Peachtree St. N.E., archts.

Ala., Leeds — HOUSING — B.A. 10/15 — Leeds Housing Auth., Leeds, 45 housing units. CD 10/9/50.

Tenn., Frayser—SCHOOL—B.A. 10/15 — Frayser School Bd., Pery McDonald, pres., Frayser, 1 story, concrete, brick, steel, Public School bldg. $500,000. E. L. Harrison, 81 Madison Bldg., Memphis, archt.

La., New Orleans—STATION—B.A. 10/19—New Orleans Union Passenger Terminal Comn., 501 S. Saratoga St., 2 story, Mezzanine, 140x257 ft., steel, masonry New Orleans Union Station bldg. on site bounded by S. Saratoga Loyola Ave., Howard Ave., and Calliope St. Plans deposit $75. Wogan & Bernard & Assoc., Pere Marquette Bldg., archts. CD 11/17/49.

N. C., Raleigh—HEADQUARTERS—B.A. 10/23—General Baptist State Convention of North Carolina, c/o M. A. Ham, archt., Durham, headquarters bldg Plans deposit $50.

Ga., Ashburn—HOUSING—B.A. About 11/1—Ashburn Housing Auth., Ashburn, 56 housing units, $450,000.

▲ **Ga., Athens**—HOUSING—B.A. About 11/1 Athens Housing Auth., Athens, 156 housing units, $1,300,000. CD 1/9/50.

Ga., Buford—HOUSING—B.A. About 11/1—Buford Housing Auth. Buford, 70 housing units, $575,000. 6/23/50.

Ga., Cartersville—HOUSING—B.A. About 11/1—Cartersville Housing Auth., Cartersville, Ga., 110 housing units. $850,000. CD 6/23/50.

Ga., Newnan—HOUSING—B.A. About 11/1—Newnan Housing Auth., Newnan, 100 housing units, $800,000.

Ga., Sylvester—HOUSING—B.A. About 11/1—Sylvester Housing Auth., Sylvester, 60 housing units, $500,000.

Ga., Toccoa—HOUSING—B.A. About 11/1—Toccoa Housing Auth., Toccoa, 88 housing units, $700,000. CD 3/13/50.

▲ **S. C., Laurens**—HOUSING—B.A. About 11/1—Laurens Housing Auth., Laurens, 120 housing units. $1,000,000. CD 6/2/50.

▲ **Tenn., Murfreesboro**—HOUSING—B.A. About 11/1—Murfreesboro Housing Auth., Murfreesboro, 140 housing units. $1,125,000.

SOON LETS CONTRACT—BUILDINGS

▲ **Ala., Birmingham**—HOSPITAL—Birmingham Baptist Hospital Assn., c/o Lawrence S. Whitten, archt., Brown-Marx Bldg., soon lets contract hospital addn. Approx. $1,000,000. CD 8/24.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

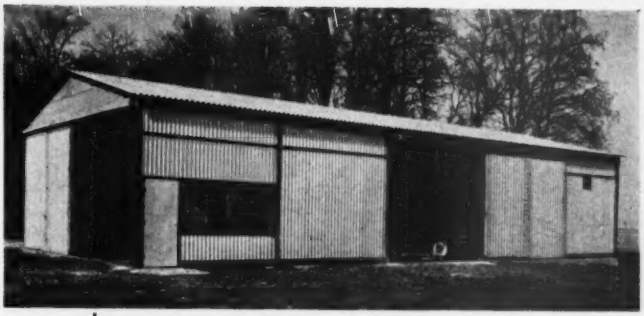
† **VIRGINIA**—U. S. Eng., foot of Front St., Norfolk, **Nello L. Teer Co.**, Durham, N. C., CA. **$727,748**, relocation Hy. 58 west of Clarksville, Buggs Island Reservoir, Inv. CIVENG 44-110-52-7. Bids Sept. 12. CD 8/3/44, under Earthwork, Waterways.

†**Sutton & Co.**, Radford, Va. CA **$425,806**, relocation Atlantic and Danville R. R., CIVENG 44-110-52-5, Buggs Island Reservoir, VIRGINIA. U. S. Eng., foot of Front St., Norfolk, Va. Bids Sept. 12. CD 8/3/44, under Earthwork, Waterways.

L. W. Routh Constr. Co., Greensboro, S. C., LB, **$102-428**. Part 1. F. J. Seastrunk, 1731 Harden St., Columbia, S. C., LB, **$193,316**, Part 2, rural telephone lines, Rowan Co., NORTH CAROLINA. Eastern Rowan Telephone Co. Inc., Granite Quarry, N. C. Bids Aug. 31. CD 8/30, under LB.

Howard Const. Co., Inc., Greensboro, N. C. LB. **$98,914**. WW Imprvs., 8,420 lin. ft. 10 in. C.I. pipe, GREENSBORO, N. C. City, H. D. Medford, dir. P. Wks, Greensboro, N C. Bids Sept. 12. CD 9/6.

▲ **FLORIDA**—State Hy. Dpt., Bradenton Memorial Pier, Bldg, Bradenton,
Hardaway Constr. Co., P. O. Box 1369, Columbus, Ga., CA **$7,614,236**, substructure.
Virginia Bridge Co., 885 Madison Ave. S.E., Roanoke,



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Va., CA. $3,873,991, superstructure both for lower Tampa Bay Bridge, Manatee Co. Bids June 26, awarded Sept. 13. CD 7/3, under LB.

† **Standard Dredging Corp.**, 80 Broad St., New York, N. Y., CA, $937,340, dredging about 4,660,000 cu. yd. materials. 49 mi. Intracoastal Waterway from Palm Valley to Flagler Beach Duval and St. Johns Counties, ENG 08-123-52-6, FLORIDA U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. Bids Sept. 4. CD 9/12, under LB.

FLORIDA—State Rd. Dpt., County Court House, Fort Myers,

Scott Constr. Co., Thomasville, Ga., LB $985,019. 2 concrete bridges to replace 3 timber spans on State Rd. 10, Santa Rosa Co. Bids Sept. 14. CD 9/7.

Langston Constr. Co., Orlando, Fla., LB, $357,192 Sect. 1, sanitary sewer imprvs.

W. D. Owens Constr. Co., Clearwater, Fla., $79,400, Sect. 3.

Hubbard Constr. Co., Orlando, Fla., LB, $249,659 Sect. 4, LAKE WALES, FLA. City, Lake Wales, Fla. Bids Sept. 4. CD 7/25.

R. H. Wright & Son, Fort Lauderdale, Fla., LB, $261,-648, addnl. sidewalks imprvs. under Proj. SK-119, MIAMI, FLA. City, Miami, Fla. CD 4/26/46.

ALABAMA—State Hy. Dpt., Montgomery,

G. W. Norell Constr. Co., Georgiana, Ala., LB, $71,811 bridges, approaches 1.82 mi. at Burnt Corn Creek on Lenox-Castleberry Rd., FA-S-170 (1), Conecuh Co.

W. A. McWaters, 2 Clayton St., Montgomery, Ala., LB, $71,367, bridge 6.104 mi. on county road from Florette north to Woodland Mills, SACP-186-B, Morgan Co.

Montgomery Constr. Co., Box 255, Montgomery, Ala., LB, $60,522, bridge on road from U. S. 72 south to Wheeler Mountain, FA-S-485 (1), Colbert Co. Bids Aug. 31. CD 8/18.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

W. R. Aldrich & Co., 2493 Baywood Ave., Baton Rouge, La. CA $545,859. Steel, swing span plate girder bridge, drainage structure, b. conc. 5.874 mi. Houma Theriot Hy., State Rte. 247, S. P. 245-02-23, F. A. S. P. 119 (2), Terrebonne Parish. Bids 9/5, awarded Sept. 19. CD 9/12, under LB.

T. Miller & Sons, Box 921, Lake Charles, La. CA $808,-8[illegible]. Sewage plant, LAFAYETTE, LA. City, Lafayette, La. Awarded Sept. 10. CD 9/6, under LB.

The Carroll Drainage & Constr. Co., Lake Providence, La. LB $135,840. Approx. 1,200,000 cu. yd. channel excav., LIVINGSTON, LA. Livingston Parish Police Jury, Livingston, La. Bids Sept. 12. CD 8/30.

W. R. Mitchell, 5 S. 3 St., Prichard, Ala. LB $223,895. WW imprvs., NEW ORLEANS, LA. East Jefferson Waterworks Dist. 1, $600 Jefferson Hy., New Orleans, La. Bids Sept. 13. CD 9/5.

Bob Bros. Constr. Co., 2400 Cypress St., New Orleans, La. CA $274,213. Contr. 319-S, installing force main, NEW ORLEANS, LA. Sewer & Water Bd., 526 Carondelet St., New Orleans, La. Bids Sept. 5, awarded Sept. 13.

C. W. Vollmer & Co., P. O. Box 6097, New Orleans, La. LB $60,450. bulkhead at Lincoln Beach, NEW ORLEANS, LA. Orleans Levee Dist., Civil Courts Bldg., New Orleans, La. Bids Sept. 10. CD 8/22.

† **Emory & Richards**, 2117 N. Central Ave., Knoxville, Tenn. LB. $346,980, readiness hangar at McGhee-Tyson Air Force Base, KNOXVILLE, TENN. U. S. Eng., 303 U. S. Court House, Nashville 1, Tenn. Bids Sept. 11. CD 8/25.

J. B. Michael & Co., 1021 Heywood St., Memphis, Tenn., CA. $148,000. Replace sections of Northeast-Southwest Runway, etc. at Municipal Airport, MEMPHIS, TENN. City, City Hall, Memphis, Tenn. Bids Aug. 21.

Buchi Plumbing Co., 220 12 Ave., N., Nashville, Tenn., LB. $101,130, exten. steam and water sys. at State A. & I. College, NASHVILLE, TENN. State of Tennessee, Nashville, Tenn.

BUILDINGS

LOW BIDS AND CONTRACTS

B. & J. Constr. Co., 3432 Connecticut Ave. N.W., Wash., D. C. CA $565,565, Mt. Vernon HIGH SCHOOL addn., FAIRFAX, VA. Fairfax Co., Fairfax, Va. Bids Aug. 30. Awarded about 9/6. CD 8/30, under LB.

Charles W. Barger & Son, Lexington, Va., LB. $532,-000. Academic SCIENCE bldg., LEXINGTON, VA. Virginia Polytechnic Institute, Lexington, Va. Bids 2/23 rejected CD 3/6, under LB.

Harrison Constr. Co., 1101 Western Ave., Pittsburgh, Pa., CA. Approx. $500,000. 8th hydro-electric PLANT on east fork of Tuckasegee River, Jackson Co., NORTH CAROLINA Nantahala Power & Light Co., Franklin, N. C.

J. A. Jones Constr. Co., 209 W. 4 St., Charlotte, N. C. CA. $681,600. Tuberculosis HOSPITAL, CHAPEL HILL, N. C. State Sanatorium for Treatment of Tuberculosis, McCain, N. C. Bids Aug. 28. CD 9/5, under LB.

R. H. Pinnix Constr. Co., Gastonia, N. C., CA. Approx. $250,000. PLANT 34,000 sq. ft., mfg. household cleaning and bleaching fluids, CHARLOTTE, N. C. Clorox Chemical Co. c/o Walter Hook & Assoc., archts., 303½ W. 4 St., Charlotte, N. C. CD 6/11.

T. A. Loving Co., Bank of Wayne Bldg., Goldsboro, N. C., LB. $113,162, DAIRY BARN at Hospital, GOLDSBORO, N. C. State Hospital Bd. Control, Goldsboro, N. C. Bids Sept. 6. CD 8/17.

▲† **Bailes-Sey Contractors**, 325 W. Forsyth St., Jacksonville, Fla., LB, $365,690, laying 6½ mi. railroad track, NOY 29392; **J. A. Jones Constr. Co.**, 209 W. 4 St., Charlotte, N. C., LB $1,643,690, initial site development, street, railroad grading, water sys., storm drainage sys., NOY 29382; both at Marine Corps Supply Depot, ALBANY, GA. Dept. Navy, Officer in Charge of Constr., Box 365, Naval Base, S. C. Bids Sept. 13. CD 9/6.

McDonough Constr. Co. of Georgia, 7 Baltimore Pl., Atlantic, Ga., CA. $800,000, 180 APARTMENT UNITS, ATLANTA, GA. Edward Tucker Homes, Inc., c/o contractor.

Wesley & Co., 285 Hunnicutt St. N. W., Atlanta, Ga., CA $600,000, WAREHOUSE and OFFICE, CHAMBLEE, GA. J. I. Case Co., 700 State St., Racine, Wis. Bids May 31. CD 5/15.

▲ **Newman Constr. Co.**, LaGrange, Ga., CA, $1,172,000 Southwest LaGrange Elementary SCHOOL, LAGRANGE, GA. City Bd. Educ., LaGrange, Ga. Bids Aug. 23. CD 8/29, under LB.

Ne-Hi Bottling Co., 215 W. Oglethorpe St., Savannah, Ga., Owner Builds, $100,000, bottling PLANT, SAVANNAH, GA.

Brice Bldg. Co., 1021 21 Ave. N., Birmingham, Ala., CA, $180,000 WAREHOUSE-STORE bldg., BIRMINGHAM ALA. E. P. Cuthrell, c/o contractor.

J. H. West & Son, 4210 1 Ave. N., Birmingham, Ala., CA $85,000, TRUCK SALES and SERVICE BLDG. addns., alterations, BIRMINGHAM, ALA. Dunham GMC c/o contractor.

▲ **Associated Builders & Contractors**, 2 Clayton St., Montgomery, Ala., CA, $1,798,000 construct, manage and finance 225 HOUSING units at Craig Air Force Base, SELMA, ALA. U. S. Eng., Post Office Bldg., Atlanta, Ga. Bids Aug. 8. CD 8/18, under LB.

▲ **C & S Investment Co.**, 1220 Prytania St., New Orleans, La. Owner Builds. $1,700,000. OFFICE, NEW ORLEANS, LA. CD 8/30.

Finley & Bonura, Delta Bldg., New Orleans, La. CA $95,000. WAREHOUSE addn., NEW ORLEANS, LA. Western Auto Stores, 353 Baronne St., New Orleans, La.

Cassell Bros., Kingsport, Tenn., CA, $350,774. Keystone Elementary SCHOOL addn., JOHNSON CITY, TENN. City, Johnson City, Tenn.

Pennington & Mackabee, LaFollette, Tenn., LB. $384,824, HIGH SCHOOL, LAFOLLETTE, TENN., Campbell Co. Bd. Educ., Jacksboro, Tenn., Bids Sept. 12. CD 9/6.

Dave Dermon Co., Dermon Bldg., Memphis, Tenn., Owner Builds. Approx. $600,000. 87 HOMES, MEMPHIS, TENN.

Fisher Building Corp., Linden and Walnut Sts., Memphis, Tenn., Owner builds. Approx. $350,000. RESIDENTIAL development, Summer St., MEMPHIS, TENN.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

Wis., Rice Lake—B.A. 10/2—City, sewerage treatment plant and dewatering equipment. Plans deposit $20. Davy Eng. Co., 502 Main St., La Crosse, Wis., engr. Extended date. CD 8/15.

† **O., Columbus**—RUNWAY—B.A. 10/22—U. S. Eng., 237 4th Ave., Huntington 18, W. Va., construct apron for northeast-southwest runway, Station 85 plus 58.93 to 97 plus 08.93, Lockbourne Air Force Base, Serial No. ENG 46-022-52-17. CD 9/11.

Mich., Saginaw—Bids Asked—Saginaw Twp. Bd., 22 mi. water distr. mains, Lothrop Park. Francis Eng. Co., 303 Eddy Bldg., engrs. CD 10/31/50.

BIDS ASKED—BUILDINGS

O., Akron—SCHOOL—B.A. 10/3—Bd. Educ., 70 N. Broadway, Windemere Elementary School and remodelling present bldg., 2283 Windemere St. Plans deposit $20. Beiswenger & Hoch, 1661 W. Market St., archts. CD 11/16/50.

† **Ind., Mill Creek**—DWELLINGS, etc.—B.A. 10/4—U. S. Eng., 830 W. Broadway, Louisville 3, Ky., dwellings, shop bldg. and misc. structures, Cagle Mill Reservoir, Serial No. CIVENG 15-029-52-33. CD 6/13.

Ind., Pendleton—DORMITORY—B.A. 10/4—State, P. Wks., & Supply Div., W. R. Mybeck, dir., State House, Indianapolis, 2 story, brick, rein.-con. dormitory, State Reformatory, $600,000. Plans deposit $50. L. Crosby Bernard, 7241 Forest Ave., Hammond, archt. CD 8/20.

O., Parma—HIGH SCHOOL—B.A. 10/5—Bd. Educ., J. H. Wanke, clk., 5401 W. 54 St., Parma Senior High School, W. 54 and Longwood Ave. Plans deposit $250. Fulton, Krinsky & Dela Motte, 6014 Euclid St., Cleveland, archts. CD 7/5.

O., Columbus—SCHOOL—B.A. 10/15—Bd. Educ., 270 E. State St., West Mound Elementary School, 2051 W. Mound St. $300,000. Plans deposit $10. Edward Kromer, c/o owner, archt. CD 1/8.

Ind., Elkhart—SCHOOL—B.A. 10/23—Bd. School Trustees, J. C. Rice, supt. Schools, High School Bldg., 2 story, 64x492 ft., 130x130 ft., rein.-con., brick Junior High School, $1,000,000. Maurer & Maurer, 312 Lafayette Bldg., South Bend, archts. CD 6/20/45.

Ind., Goshen—HOSPITAL—B.A. 10/25—Bd. Hospital Trustees, L. W. Williams, chn., 2 story, bsmnt., brick, stone, rein.-con. hospital, $800,000. Plans deposit $25, Paul E. Jerngegan, 223 Lincolnway E., Mishawaka, archt. Bevington-Taggart & Fowler, 730 Independent Pythian Bldg., Indianapolis, Zone 4, mech. engrs. CD 6/6/46.

Ill., Chicago—NURSERY—Bids Asked—Augustana Hospital, Dickens and Sedgwick Sts., Zone 14, 3 story,

(Continued on page 127)

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This new office building, in the heart of New York's Grand Central District, is known as the Chrysler Building East. It is a 32-story companion structure to the 77-story Chrysler Building, and its lower six floors abut the northeast wing of that famous structure. Public corridors connect the two buildings at the basement, subway concourse, and third-floor levels.

The Chrysler Building East occupies a 30,000 sq ft plot. It has entrances on East Forty-third St., Third Avenue, and East Forty-second St., and can be reached from Grand Central Terminal and the city's subway system by means of underground passages. It is a completely self-contained unit, with its own utilities, and is serviced by 20 high-speed elevators. It is air-conditioned, and has an elaborate series of under-floor ducts to carry electric wiring for telephone, telegraph and business machines.

The Chrysler Building East is designed to afford maximum light for both buildings, and its tower is therefore located at the far end of the block from the Chrysler Building. It has approximately 420,000 sq ft of rentable area, the second to tenth floors providing from 22,000 to 26,000 sq ft each, and the tower floors each providing from 6800 to 7600 sq ft. The exterior of the new building, finished in white brick, covers a framework containing 6960 tons of steel which was fabricated and erected by Bethlehem.

Chrysler Building East as it looked with facing at 25th story. Owner: W. P. Chrysler Building Corp., New York; Architects: Reinhard, Hofmeister & Walquist, New York; Consulting Engineers: Edwards & Hjorth, New York, Guy B. Panero, New York; General Contractor: Turner Construction Co., New York. Steelwork by Bethlehem.

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BETHLEHEM STEEL

FABRICATED STEEL CONSTRUCTION

(Continued from page 124)

30,000 sq. ft. nursery addn. $300,000. A. Einar Olson, 8114 S. Western St., Zone 20, archt.

▲ **Ill., Chicago** — APARTMENT — Bids Asked — Lake Michigan and 74 Street Corp., c/o Dublin & Dublin, archts., 140 N. Dearborn St., Zone 2, apartment, 7337 S. Shore Dr., $3,500,000. H. S. Nachman & Assocs., 179 W. Washington St., Zone 2, engrs.

Ill., Chicago—FACTORY—Bids Asked—National Metal Wares, Inc., Aurora, 1 story, 50,000 sq. ft. factory, 92 and Green Sts., $350,000. A. Epstin & Sons, 2011 Pershing Rd., Zone 9, archts.

SOON LETS CONTRACT—BUILDINGS

▲ **Ill., Joliet**—CHURCH—St. Raymonds Parish, Raynor Ave., soon lets contract church, $2,000,000 McCarthy & Smith, 69 W. Delaware St., Chicago, Zone 10, archts. CD 6/1/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

The Horvitz Co., Midland Bldg., Cleveland 15, O., CA. $90,625, est. $91,700 wid'n., asph. resurf. Belvoir Blvd. between Hillsboro and Bluestone Rds., East Cleveland, Cleveland and South Euclid.

William L. Schloss Asphalt Paving Co., 3494 Lee Rd., Cleveland 5, O., CA. $69,464, est. $74,800, asph. surf. W. 54 St., between Brookpark Rd. and Pelham Dr. Parma, CLEVELAND, O. Cuyahoga Co., Court House, Lakeside Ave., Cleveland 14, O. Bids Sept. 10. CD 9/6.

▲ **Birmingham Constr. Co.**, Birmingham, Mich., LB $648,000, Contr. 4a, dam and spillway; LB, $122,000, Contr. 3a, auxiliary pumping plant.

Morris Prosser Constr. Co., Franklin, Ind., LB $142,440, Contr. 4b, relocation of roads. LB. $226,210, Contr. 4c, auxiliary main.

Fishel Co., 1343 Holly St., Columbus, O., LB. $128,650, Contr. 5, watermains (Lake to City). BLOOMINGTON, IND., Bd. P. Wks., Bloomington, Ind. Bids 8/10. CD 7/9.

Bd. P. Wks., City Hall, Indianapolis, 4, Ind., received no bids Sept. 6, first section of 34 St. sewers between Fall Creek and Temple Sts., INDIANAPOLIS, IND. CD 8/14.

† **U. S. Eng.**, 834 U. S. Court House & Custom House, 1114 Market St., St. Louis, 1, Mo., Day Labor, $108,753, est. $108,753, bulkhead recesses, Mississippi River, Lock and Dam 26 adjacent to city of Alton, Madison Co., Inv. No. CIVENG 23-065-52-51, ILLINOIS. CD 7/27, under LB.

† **J. S. Alberici Constr. Co.**, 1550 Irving Ave., St. Louis, 20, Mo., CA, $153,371, est. $148,076, flood wall and closure structure, East Side Levee and Sanitary Dist., Proj. Item 1-J (1), St. Clair Co., CIVENG 23-065-51-53, ILLINOIS. U. S. Eng., 834 U. S. Court House and Custom House, 1114 Market St., St. Louis, 1, Mo. Bids Mar. 27. CD 4/2, under LB.

† **Grant Contg. Co.**, 112½ W. 4 St., Greenville, O., LB, $106,500, est. $87,980, dredging in Alton Pool of Illinois waterway, St. Louis Dist., Incl. dredging and satisfactory disposal of material, CIVENG 23-065-51-81, ILLINOIS. U. S. Eng. 834 U. S. Court House and Custom House, 1114 Market St., St. Louis, 1, Mo. Bids Sept. 11.

Ready Coal & Constr. Co., 4644 S. Halsted St., Chicago, 9, Ill., LB, $189,845, Central Ave. paving from Archer Ave. to 47 St.

McDuffie Brown & Brophy, 3423 N. Drake St., Chicago, 18, Ill. LB, $156,919, paving Howard Ave. from Cicero to Crawford Aves., Skokie.

Calumet Coal Co., 9540 Marquette Ave., Chicago, 17, Ill., LB, $244,913, paving 47 St. from Cicero to Central Aves., CHICAGO, ILL. Cook Co., County Bldg., Chicago, Ill. CD 11/3/49.

▲ **MICHIGAN**—State Hy. Dpt., 222 Townsend St., Lansing, Zone 13,

Pierson Contg. Co., 609 Eddy Bldg., Saginaw, Mich. LB. $1,046,787, est. $975,000, 7.061 mi. 5 in. c. conc., wid'n. M-97, F 50-7, CS (F 421 1), Macomb Co.

Cooke Contg. Co., 1116 Penobscot Bldg., Detroit, Mich. LB. $527,289, est. $380,000, 9 in. uniform concre e 44 ft. wide, 2.723 mi. M-29, U 50-51, C1 (U-423 1), Macomb Co.; LB. $423,216, est. $375,000, b. conc. 8.14 mi. US-112, M 81-4, C2; M-82-10, C5, Washtenaw Co.

Cadillac Asphalt Paving Co., 12490 Evergreen St., Detroit, Mich. LB. $244,296, est. $300,000, b.-conc. 5.605 mi. US-10, M 63-24, C21, M63-3, C18, Oakland Co.

A. J. Smith Contg. Co., Eight Mile Rd., Detroit, Mich. LB. $234,543, est. $190,000, 9 in. uniform concrete 2.894 mi. M-102, M 82-98, C4, Wayne Co. Bids Sept. 12. CD 9/7.

City, Harold M. Kinder, city mgr., Flint, Mich. Own Forces. $410,000 resurf. old pavement various sreets, FLINT, MICH.

BUILDINGS

LOW BIDS AND CONTRACTS

Max Irmscher & Sons, Inc., 1113 Fort Wayne Bank, Fort Wayne, Ind., CA, $400,000, FACTORY, FORT WAYNE, IND. Magnavox Corp., Bueter Rd., Fort Wayne, Ind. CD 3/12.

E. B. Ball & Son, 1011 N. Beville St., Indianapolis 1, Ind., LB. Approx. $350,000. 1 story, bsmnt., stone veneer, brick CHURCH, INDIANAPOLIS, IND. University Park Christian Church, 46 and Ill. Sts., Indianapolis, Ind. Robert Forst Daggatt, 350 Fall Creek Blvd., N. Dr., Indianapolis, Ind., archts. CD 2/9/48.

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SHEET STEEL PILING

Tonn & Blank, 104 Franklin St., Michigan City, Ind., CA **$500,000**, FACTORY with OFFICE, MICHIGAN CITY, IND. Pal Wheel Goods Corp., Michigan City, Ind.

▲ **Fluor Corp., Ltd.**, 360 E. 2 St., Los Angeles, Calif., CA, **$1,700,000**, sulphur PLANT, WHITING, IND. Standard Oil Co. (Indiana), 910 S. Michigan Ave., Chicago, Ill.

Ferd Ganschnietz, 501 N. 18 St., East St. Louis, Ill., LB, **$127,282**, 1 story, 78x165 ft., 35x67 ft., brick frame, county highway dept. GARAGE, BELLEVILLE, ILL. Dpt. Roads & Bridges, St. Clair County, R. R. Bartelsmeyer, Highway Bldg., W. Main St., Belleville, Ill. Bids Aug. 30. CD 8/24.

Louis Raffin, 382 E. 116 St., Chicago, 28, Ill., and **Wendnagel Co.**, 600 W. 22 St., Chicago, Ill., CA **$400,000**, 34,000 sq. ft. electric FURNACE BLDG. on plant premises, 1000 W. 120 St., Chicago, Zone 28, CHICAGO, ILL. Borg-Warner Corp., Ingersall Products Div., 310 S. Michigan Ave., Chicago 4, Ill. Johnson & Johnson, 111 W. Washington St., Chicago, 2, Ill., archts. Awarded Sept. 4.

Telander Bros., 8151 S. Western St., Chicago, 29, Ill., CA, **$300,000**, FACTORY addn., CHICAGO, ILL. Dreis & Krump, 1401 W. 74 St., Chicago, 20, Ill. David Robertson, 2242 Grove St., Chicago, Ill., archt. Awarded Sept. 10. CD 4/27.

▲ **S. M. Wilson & Co.**, 1616 Cleveland Ave., Granite City, Ill., CA, **$1,212,165**, constr. Project III 15-6, incl. 22 bldgs. containing 100 units and 1 story management and maintenance bldg., COLLINSVILLE, ILL. Madison County Housing Auth., D. F. Braner, exec. dir., 3 and Haller Sts., Alton, Ill. Bids July 17, awarded Sept. 12. CD 7/25, under LB.

Mazzucco Constr. Co., 4 E. Clinton St., Joliet, Ill., LB, **$445,000**, high SCHOOL addn., LOCKPORT, ILL. School Dist. 205, Lockport, Ill. Bids Aug. 22.

O. W. Potter & Sons, Wauconda, Ill., LB, **$369,000**, 1 story SCHOOL, NORTH CHICAGO, ILL. School Dist. 64, 1110 38 St., North Chicago, Ill. Bids Sept. 11. CD 8/16.

T. S. Willis, Janesville, Wis., LB, **$300,000**, 1 story, 32,000 sq. ft. SCHOOL and CONVENT, ROCK FALLS, ILL. St. Andrew Parish, 806 S. 4 St., Rock Falls, Ill. J. J. Fald, 908 W. Johnson St., Madison, Wis., archt.

Poirot Constr. Co., 2001 Pershing Rd., Chicago 9, Ill., LB. **$677,000**, HIGH SCHOOL addn., ST. CHARLES, ILL. School Dist. 303, 705 W. Main St., St. Charles, Ill. Bids Sept. 5. CD 8/30.

▲ **Walsh Constr. Co.**, 140 N. Dearborn St., Chicago 2, Ill., CA, **$20,000,000**, mental HOSPITAL, TINLEY PARK, ILL. Cook Co. County Bldg., Chicago 2 Ill. Bids May 15, awarded Aug. 14. CD 5/3.

▲ **Kasper Constr. Co.**, 1203 N. 16 St., Manitowoc, Wis., CA, **$2,500,000**, NE and SW PLANT addn., 1 story, 30x100 ft. and two tanks, 2 story L-shaped, 40x60 ft., MANITOWOC, WIS. Manitowoc Portland Cement Co., Spring St., Manitowoc, Wis. CD 8/5.

▲ **Thomsen-Abbott Constr. Co.**, Marshfield, Wis., CA. **$1,039,756**, general constr. 2 story, part bsmnt., 80x388 ft., 123x135 ft. Junior-Senior High SCHOOL and GYMNASIUM, ROTHSCHILD, WIS. Joint School Dist. 1, Rothschild, Wis. Bids July 21. CD 8/28, under LB.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **North Dakota**—B.A. About 10/2—U. S. Eng., 1217 U. S. Post Office and Custom House, St. Paul 1, Minn., installing water supply and sewage disposal facilities at Baldhill Dam site, Sheyenne River, near Valley City. Inv. No. CIVENG 21-018-52-7.

† **Colorado**—B.A. 10/2—Bureau Reclamation, Dpt. Interior, Shadow Mount Govt. Camp, Grand Lake, clearing Willow Creek Reservoir City, Colorado-Big Thompson Proj. Spec. 704C-213.

† **Colorado**—TRANSFORMERS, etc.—B.A. 10/2—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing and del. f.o.b. cars at shipping point or f.o.b. cars at Campion and Loveland, Colo., transformers, control board, battery chargers, regulator for Flatiron Power and Pumping Plant, Colorado-Big Thompson Proj., Spec. DS 3527. L. N. McClellan, ch. engr.

† **S. D., Rapid City**—DEEP WELL PUMP—B.A. 10/4—U. S. Eng., 1709 Jackson St., Omaha, Neb., deep well pump at Rapid City, Air Force Base, near Weaver. Inv. 52-28(SP). CD 3/20.

† **Colorado**—TRANSMISSION LINE—B.A. 10/9—Bureau Reclamation, Dpt. Interior, Estes Park, Colo., constr. 9.5 mi. Estes-Pole Hill 115 kv transmission line, Colorado Big Thompson Proj., Spec. DC-3540. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

† **Montana**—CONTROL VALVES—B.A. 10/9—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Coram, 2 control valves, control stand, one lot control connections for spillway ring gate at Hungry Horse Dam, Hungry Horse Proj. Spec. DS 3539, L. N. McClellan, c/o owner, ch. engr.

† **Oklahoma**—DISTRIBUTION CENTERS, etc.—B.A. 10/9—U. S. Eng., Box 61, Tulsa, distribution centers and lighting transformers at Tenkiller Ferry Dam. Approx. $200,000.

▲† **Tex., Wichita Falls**—AIR BASE—B.A. 10/9—U. S. Eng., Box 61, Tulsa, Okla., addni. maintenance and operations facilities, Approx. $500,000; maintenance hangars, $1,250,000; maintenance base shops, $1,750,000. Shepherd Air Force Base. CD 2/12.

† **Nebraska**—B.A. 10/11—Bureau Reclamation, Dpt. Interior, Arapahoe, earthwork, structures, Cambridge lateral sys., laterals 2.3, 3.4, 4.6, 6.2, 6.3, 7.11, 8.8, and 10.6 and sub-laterals, Cambridge Unit, Frenchman-Cambridge Div., Missouri River Basin Proj. approx 4 mi. west of Holbrook to Arapahoe, Spec. No. DC-3545. CD 5/25/44.

† **South Dakota and Iowa**—TRANSMISSION LINES—B.A. 10/11—Bureau Reclamation, Dpt. Interior, Huron, S. D., construct Fort Randall-Sioux City 230-kilovolt transmission line, Transmission Div., Missouri River Basin Proj. Spec. No. DC-3546.

† **Wyoming**—VALVES, etc.—B.A. 10/11—Bureau Reclamation, Dpt. Interior, Building 53, Denver Federal Center, Denver, Colo., furnishing, and del. f.o.b. cars shipping point or f.o.b. cars Casper, valves, control systems, and accessories for Alcova Power Plant, Kendrick Proj.; Spec. DS-3543. L. N. McClellan, ch. engr.

Tex., Abilene—B.A. 10/12—City, P. Hancock, mgr., complete 8 m.g.d. filter bldg., addn. to chem. storage floor and revision to present chemical bldg., high service pumps, motors, switchgear, wash motor tank, 30 in. high service main, $300,000. Plans deposit $25. Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs. CD 8/27.

† **Tex., Big Spring**—SHOPS—B.A. 10/12—U. S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, 12,000 sq. ft., AIO shop at Big Spring Air Force Base. $90,000. CD 8/8.

Missouri—RURAL DISTRIBUTION LINES—B.A. On Or Before 10/13—Citizens Electric Corp., 216 Merchants St., Ste. Genevieve, construct 43 mi. 69 KV transmission lines in Ste. Genevieve and Perry Counties, 2 sub-stations, 69/33 kv 10,000 KVA each, addns. to existing 69 KV sub-station, Owner furnishes materials. Drazen & Assoc., 8135 Forsyth Blvd., St. Louis, Zone 24, consult. engrs. CD 3/16.

Kansas—RURAL DISTRIBUTION LINES—B.A. 10/15—Radiant Electric Co-operative, Fredonia, 75 mi. rural distr. lines, in Wilson Co. Flora Eng. Co., 1717 E. Colfax Ave., Denver, Colo., engr. CD 7/16.

† **North Dakota**—B.A. 10/16—U. S. Eng., Fort Lincoln, P. O. Box 300, Bismarck, excavation and main embankment Stage IV, Garrison Dam and Reservoir Proj., Inv. 52-6. CD 6/1/44.

† **Nebraska**—B.A. 10/16—Bureau Reclamation, Dpt. Interior, Trenton, relocation county road on south side of Swanson Reservoir, Spec. No. 701C-200.

† **South Dakota**—B.A. 11/15—U. S. Eng., 1709 Jackson St., Omaha, Neb., construct penstocks and surge tanks for Fort Randall Reservoir Proj. near Lake Andes, Spec. No. CIVENG 25-066-52-28. Plans deposit $50. CD 5/15/44.

BIDS ASKED—BUILDINGS

† **Colorado**—STORAGE—B.A. 10/9—Bureau Reclamation, Dpt. Interior, Loveland, storage bldg., and maintenance garage-shop for Loveland Service Area Colorado-Big Thompson Proj., Spec. 704C-208. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

† **N. M., Los Alamos**—BUILDINGS—B.A. 10/9—U. S. Atomic Energy Comn., Los Alamos, buildings and facilities, TA-22, Proj. D, mostly a laboratory bldg., Inv. No. 291-52-26. $250,000-$350,000. Plans deposit $50. CD 9/18.

† **N. M., Gallup**—NAVAJO CENTER—B.A. 10/24—Bureau Indian Affairs, Dpt. Interior, Interior Bldg., Wash., D. C., construct the Navajo Center.

▲ **Tex., Dallas**—HOSPITAL—B.A. 12/6—City, City Hall, Main and Harwood Sts., and Dallas Co. Court House, Dallas, 8 story bsmnt., 633 beds, masonry city-county hospital, $7,500,000. Plans deposit $50; laundry plant, $75,000; nurses home, $750,000; electric power and heating plant for hospital, $200,000. De Witt & Swank, 2025 Cedar Springs Rd., archts, CD 5/4/50.

▲ **Tex., Freeport** — RESEARCH LABORATORY — Bids Asked—Dow Chemical Co., Freeport, 8-bldg. unit, 57,000 sq. ft. research laboratory center. $2,600,000. Howard & Johnson, Scanlan Bldg., Houston, engrs. CD 8/28.

SOON LETS CONTRACT—BUILDINGS

Tex., Houston—PERSONNEL and MEDICAL BLDGS.——The Ethyl Corp., National Standard Bldg., soon lets contract rein.-con., brick personnel and medical bldgs. rein.-con. drilled footings, $300,000. Goleman & Rolfe, 915 Woodrow St., archts. CD 3/30, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul.

A. L. Alley & Son, Faribault, Minn., CA $359,593, grading, 2.1 mi. Goodhue Co.

DeRyter Bros., Willmar, Minn., CA $99,988, grading 6.1 mi. between east limits of Pennock and 1.4 mi. northwest of Willmar and between Ferring St. in Willmar and 3.8 mi. east, Kandiyohi Co.

J. Dieseth Co., P. O. Box 97, Fergus Falls, Minn. CA $111,027, shoulder grading 16.5 mi. between Canby and Jct. T. H. 212, Lac qui Parle Co.

Enebak Constr. Co., Box 387, Faribault, Minn., CA $205,753, grading 8.3 mi. between 0.5 mi. west

Loon Lake bridge in Douglas county, Oregon

modern bridge shows today's construction advantages of wood

For speed of construction and economy, it's hard to match modern timber engineering techniques used recently to build the rugged Loon Lake bridge shown above. Wood, glue-laminated for strength and pressure-treated for durability, was used with ingenious timber connectors to make the arches, struts, beams and deck. With wood's natural resistance to rust, corrosion, crumbling and spalling, Loon Lake now has a long-lasting, sturdy bridge able to withstand the daily pounding of heavy, fast traffic.

in wood, your best buy is
WOLMANIZED* pressure-treated LUMBER

Why? Because, in addition to wood's natural advantages, Wolmanized Lumber gives you positive protection against *rot and termites*. It's also paintable, clean, odorless, non-leaching, and non-corrosive to metal.

You also get fabrication flexibility! At Loon Lake, for example, some Wolmanized Lumber parts were pressure-treated *before* lamination; some *after lamination*.

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How WOLMANIZED Lumber was used on Loon Lake bridge:
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*Reg. U. S. Pat. Off.

Wolmanized PRESSURE TREATED **Lumber**
Stops Rot and Termites

of Morristown and 0.9 mi. west of west limits of Faribault, Rice Co.

W. C. Grimes Co., Bagley, Minn., CA **$278,269**, grading 13.9 mi. Beltrami Co.

W. Hodgman & Sons, Fairmont, Minn., CA **$311,403**, grav. base, plant-mixed bit. surf. 11.3 mi. between Fairmont and south state line and in Truman, Martin Co.

Megarry Bros., St. Cloud, Minn., CA **$137,774**, plant mixed bit. base, surf. 2 mi. between 0.8 mi. southwest of south limits of Detroit Lakes and south jct. TH 10 in Detroit Lakes, Becker Co.; CA **$167,004**, grav. base, plant-mixed bit. surf. 2.8 mi. in Brainerd, Crow Wing Co.

Minnesota Valley Improvement Co., Granite Falls, Minn. and **W. Zaske**, Danube, Minn., CA **$114,969**, grav. base, road-mixed bit. surf. 9.2 mi. between west line of Kandiyohi Co. and Willmar, Kandiyohi Co.

W. Zaske, Danube, Minn., CA **$159,043**, grading 7.9 mi. between 0.7 mi. north of south line of Otter Tail Co., 3 mi. south of Jct. T.H. 3 Battle Lake, Otter Tail Co. Grand Total $1,944,823. Bids Aug. 31. CD 8/16.

Lametti & Lametti, 615 Drake St., St. Paul, Minn. LB **$60,094**, sanitary sewers, EDINA, MINN. Village, B. Hawthorne, clk., Edina, Minn.

IOWA—State Hy. Comn., Ames.

A. Olson Constr. Co., Waterloo, Ia., CA, **$202,154**, bridges Groups 3, 4 and 5, F-200 (9), Black Hawk Co. Bids Sept. 4. CD 8/23.

† **Pine Bluff Sand & Gravel Co.**, Pine Bluff, Ark. CA **$449,331**, pile dikes, revetment, repairs adjacent to Missouri River, near St. Joseph, Inv. 52-36. MISSOURI. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. Bids Sept. 11. CD 9/5.

Carrothers Constr. Co., Paola, Kan. CA **$122,125**. water treatment plant addn. BROOKFIELD, MO. City, Brookfield, Mo. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs.

Smith-Cooke Constr. Co., 4829 Easton Ave., St. Louis 13, Mo. LB **$356,849**, est. $325,000, furnishing, installing pre-fabricated hangar at Lambert-St. Louis Municipal Airport, Robertson, ST. LOUIS, MO. City, Frank J. McDevitt, pres., Bd. Pub. Service, 304 City Hall, 12 and Market Sts., St. Louis 3, Mo. Bids Sept. 11. CD 8/10.

SOUTH DAKOTA—State Hy. Comn., Pierre,

Inland Constr. Co., 3867 Leavenworth Ave., Omaha, Neb. CA, **$299,369**, base course, bit. surf. 14.978 mi. Proj. 156 (3). Hughes and Hyde Counties.

Northwestern Eng. Co., Rapid City, S. D., CA. **$582,411**, base course, bit. surf. 15.781 mi. Proj. FI 185 (24), Jones Co. Bids Sept. 11. CD 8/30.

James J. Parks Co., 2618 Ed. Creighton Ave., Omaha, Neb. CA. **$65,200**. resurf. Road 48 from State Hy. 8 to State Hy. 36, OMAHA, NEB. Douglas Co. Omaha, Neb. Bids Sept. 4. CD 8/16.

† **Ideker Constr. Co.**, Mound City, Mo. CA **$330,148**. emergency levee repairs at Kansas River, Delaware River and Stranger Creek, near Junction City and Turner, Inv. 52-46. KANSAS. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. Bids Sept. 11. CD 9/6.

Burt & Binford, Hutchinson, Kan. LB **$126,488**. Part A, sewage treat plant, lift station, etc., Part B, 28,158 lin. ft. 8 in. vitr. clay sewers in place, 69 manholes, 19 flushing manholes, WEST PLAINS, KAN. City, Lowell Utz, city clk., West Plains, Kan. Bids Sept. 4. CD 8/20.

OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City 5, Okla, Park-Ward Co., 711 N. 38 St., Oklahoma City 6, Okla., CA, **$87,889**, 5 span 250 ft. concrete girder bridge over Sand Creek, Major Co. Bids Sept. 11, awarded Sept. 12. CD 9/5.

▲ **OKLAHOMA**—State Hy. Dpt., Capitol Oklahoma City, Zone 5,

G. E. Keck, Fairview, Okla., CA. **$65,097**, est. $73,668, grading, drainage 7,655 mi. State Hy. 58, west of Fairview Major Co.

J. A. Brisco, Stillwater, Okla., CA. **$475,983**, est. $474,333, c. conc. pavement with asph. shoulders 6.941 mi. U. S. 60 from Fairland to Wyandotte, Ottawa Co.

W. E. Logan & Sons, Barnes Bldg., Muskogee, Okla., CA. **$235,376**. est. $238,756, grading, drainage 7 mi. U. S. 59, south of the Delaware Co. line, Adair Co.

Amis Constr. Co., 1647 Exchange Ave., Oklahoma City 8, Okla., CA. **$194,338**, est. $210,000, b. conc. 3.4 mi. business route of U. S. 77 at Norman, Cleveland Co.

Hunter Constr. Co., Ada, Okla., CA. **$61,422**, est. $62,408, grading, drainage 7.7 mi. State Hy. 7, Johnston Co. Grand total $1,032,216. Bids Sept. 11. CD 9/5.

Danta Constr. Co., 1646 W. Main St., Oklahoma City 4, Okla., CA. **$548,388**. est. $647,078. storm sewer Contr. 4 in various parts of OKLAHOMA CITY, OKLA., City, City Hall, Oklahoma City, Okla., Bids Sept. 11. CD 9/5.

▲ **TEXAS**—State Hy. Comn., Austin,

M. L. Butler & Son, P.O. Box 7112, Dallas, Tex., LB. **$93,642**, est. $75,000, grading, structures, base, surf. 6.524 mi. Hy. FM 1566, Proj. V 1495-1-1, Hunt Co.

Olene Hanson, 4906 Griggs Rd., Houston 4, Tex. LB **$134,432**, est. $100,000, grading, structures, flexible base, two course surf. tr. 6.492 mi. Hy. S4, 105T. Proj. C 813-1-4, Liberty Co.

Thomas & Ratliff, Rogers, Tex., LB. **$104,882**, est. $75,000, grading, structures, base, surf. 12.579 mi. Hy. FM 1025. Proj. V 1279-1-3, Zavala Co.

Dudley R. Cloud & Son, 1903 Transit Tower, San Antonio, Tex., LB. **$107,526**, grading, structures, base, surf. 8.339 mi. Hy. FM 108, Proj. S. 1668, (1), DeWitt Co.

E. W. Hable & Sons, Corsicana, Tex., LB. **$73,966**, est. $60,000. grading, structures, base, surf. 5.834 mi. Hy. FM 1612, Proj. S. 1633 (1), Henderson Co.

M. E. Ruby & Norman L. Larson, San Marcos, Tex. LB. **$69,303**, est. $60,000, grading, structures, base and surf. 3.617 mi. Hy. FM 1195, Proj. S 1401 (2), Washington Co.

McKown & Sons, P.O. Box 785, Austin, Tex., LB. **$237,704**, est. $250,000, flexible base, hot mix b. conc. pavement 2.117 mi. Hy. U.S. 81, Proj. UI 200 (7), Travis Co.

Howard Bros., Madisonville, Tex., LB. **$71,488**, strengthen existing base and 2 course surf. tr. 3.674 mi. Hy. SH 289, Proj. S 76 (3), Grayson Co.

Trotti & Thomson, Inc., P.O. Box 70, Beaumont, Tex., LB. **$263,837**, est. $200,000, grading, drainage structures 1.406 mi. Hy. S. 73, Spurs, 214 and FM 323, Proj. F 1052 (4), Jefferson Co.

Gaylord Constr. Co., 806 Blodgett St., Houston, Tex., LB **$377,835**, est. $200,000, grading, structures, pavement with hot mix b. conc. pavement 10.959 mi. Hy. U. S. 75, Proj. C 110-6 and 5- B and 10, Harris Co.

Ernest Loyd, P.O. Box 1120, Fort Worth, Tex., LB. **$363,622**, est. $500,000, grading, revisions, flexible base, hot mix. b. conc. pavement 9.79 mi. Hy. U. S. 277 and 281, Wichita Co.

R. W. McKinney, P.O. Box 190, Nacogdoches, Tex., LB. **$141,655**, est. $100,000, grading, structures, base and surf. 8.306 mi. Hy. FM 903, Proj. V 764-3-1, Hunt Co.

Killian-House Co., P.O. Box 1981, San Antonio, Tex., LB. **$383,079**, est. $200,000, grading, structures, pavement 1.287 mi. Hy. U. S. 81, Proj. UI 1083 (14), Bexar Co. Bids Sept. 12. CD 8/24, 8/29, 8/30.

TEXAS—State Hy. Comn., Austin.

J. B. Clardy Constr. Co., Box 7024, Sylvania Station, Fort Worth 11, Tex. LB. **$183,012**, est. $175,000. Prairie Dog Town Fork of Red River Bridge, Hy. St. 70, Hall Co.

Callan Constr. Co., 216 Professional Bldg., Waco, Tex., LB **$123,573**, est. $100,000, Navasota River Bridge and approaches Hy. SH 14 and FM 35, Proj. C-93-4 and 5-17 and 14, Limestone Co.

C. H. Harrison, P. O. Box 185, Waco, Tex., LB **$185,843**, est. $100,000. San Saba River and relief bridges and approaches, 1.29 mi. Hy. St. 16, Proj. S 137 (2), San Saba Co. Bids Sept. 12. CD 8/29.

† **Colorado Fuel & Iron**, Box 1920, Denver, Colo., LB **$69,370**, est. $100,000. 4.7 mi. chain link security fence at Pantex Plant, AMARILLO, TEX. U. S. Atomic Energy Comn., Los Alamos, N. M., Bids Sept. 6. CD 7/19.

Lanier Plumbing Co. 1500 Barton Springs Rd., Austin, Tex., CA. **$141,000**. steam distr. sys. at Austin State School. AUSTIN, TEX. Bd. for Tex. State Hospitals & Special Schools, Austin, Tex. Bids Sept. 7, Awarded Sept. 12. CD 7/9.

† **B. B. Butler, Inc.**, Box 471, Bryan, Tex., LB. **$170,886**. est. $300,000. GCA hardstand, crash station, psychological training bldg., fence, cold storage and meat cutting shop; 2 gas stations, hydrogen, oxygen storage bldg., outside utilities, Inv. No. 41-243-52-24. BRYAN, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids Sept. 11. CD 8/28.

Heidenfels Bros. Inc., Box 1917, Corpus Christi, Tex. LB. **$158,888**. est. $90,000. wid'n. and asph. paving portions Santa Fe St., concrete curbs and gutters, CORPUS CHRISTI, TEX. City, City Hall, Corpus Christi, Tex. Bids Sept. 14. Harry Sitrman, Dir. Pub. Wks. Eng.

City, Denton, Tex. Own Forces. **$60,000**. water distr. sys. imprvs. and rehabilitation; **$65,000**, water mains and distr. lines, DENTON, TEX. Joe E. Ward, 545 Nacol Bldg., Wichita Falls, Tex., engr. CD 10/24/46.

City, Denton, Tex. Own Forces. **$75,000**. storm sewers, DENTON, TEX. Joe E. Ward, 545 Nacol Bldg., Wichita Falls, Tex., engr. CD 10/24/46.

City, Denton, Tex. Own Forces. **$75,000**. street imprvs., asph. surf., DENTON, TEX.

Collins & Conroy, Constr. Bldg., Dallas, Tex., LB. **$61,448**. storm sewers, Ruth to Boll Sts., DALLAS, TEX. City, City Hall, Main and Harwood Sts., Dallas, Tex. Bids Sept. 4. CD 8/29.

George B. Lowe, Box 687, Pasadena, Tex., LB. **$34,487**. water line extension, GALENA PARK, TEX. City, Galena Park, Tex., Bids Sept. 10. CD 6/19/50.

Pittsburgh-Des Moines Steel Co., Praetorian Bldg., Dallas, Tex., CA **$179,500**, 1 m. g. steel elevated water storage tank, GREENVILLE, TEX. City, Greenville, Tex., W. R. Hunter, city engr. CD 6/14.

City, City Hall, 900 Brazos St., Houston, Tex., Force account. **$65,000**. construct unit of traffic lighting sys., HOUSTON, TEX. CD 5/7/43.

Town, Lakeview (Pt. Arthur P. O.), Tex. Own Forces. **$58,500**. 18 in. water line unit; **$85,000**, water plant unit, LAKEVIEW, TEX. J. B. Converse & Co., Port Arthur, Tex., engr.

City, Lancaster, Tex., Force Account. **$45,000**. addnl. WW expansion mostly lines, LANCASTER, TEX. A. Hunter, 4707 Greenville St., Dallas, Tex., engr. CD 4/25/50.

Dodds & Wedegartner, San Benito, Tex., LB. **$215,500**, water pipe line; LB. **$205,500**, water supply imprvs., incl. earthen reservoir PORT ISABEL, TEX. City and Cameron Co. Fresh Water Supply Dist. 1, Port Isabel, Tex. Sigler, Clark & Winston, Weslaco, Tex. engrs. CD 9/10.

† **Delaney Co.**, 6119 E. Montgomery St., Houston, Tex. LB. **$79,895**. twelve 8x12 ft. 6 in. bulkhead gates. 2 lots of bulkhead gate seats and 2 bulkhead gate lifting frames, Falcon Dam and Power Plant, Spec. D-4549 (IBWC), ROMA, TEX. Bureau Reclamation Dpt. Interior, El Paso, Tex. Bids Sept. 6. CD 8/17.

Johnson Drilling & Supply Co., Cupples Rd., San Antonio, Tex., CA. Approx. **$35,000**. water supply well, on Sutton Ave., near Woodlawn Hills, SAN ANTONIO, TEX. City, c/o Water Bd., 106 W. Market St., San Antonio, Tex. CD 8/29.

Pelphrey & Basham Co., Electric Bldg., Fort Worth, Tex., LB. **$126,325**, est. **$130,000**. sewage collection sys. adms., SAN MARCOS, TEX. City, San Marcos, Tex. Bids Sept. 10. CD 8/29.

MONTANA—State Hy. Dpt., Capitol Bldg., Helena,

Stanley Arkwright, 1200 Sixth Ave. N., Billings, Mont., CA **$614,683**, grav., oiling 11.949 mi., Pompeys Pillar-Hysham Rd., Yellowstone Co.

G. E. Marshall, Melstone, Mont., CA **$117,805**, grav. 10.037 mi. Glendive-Richey Rd., Dawson Co.

Albert Lalonde Co., Sidney, Mont. CA **$340,504**. grav., oil 11.101 mi. Glasgow-Opheim Rd., Valley Co. Grand total $1,072,990. Bids Sept. 13.

† **Adler Constr. Co.**, Loveland, Colo., LB **$825,380**, Rattlesnake Dam, Estes Park-Foothills power aqueduct, Colorado-Big Thompson Proj., Spec. DC-3503, COLORADO Bureau Reclamation, Dpt. Interior, Loveland, Colo. Bids Sept. 12. CD 9/6.

† **COLORADO**—Bureau P. Rds. Dpt. Commerce, 101 Bldg. 22, Denver Federal Center, Denver, Colo.

Platte Rogers, Inc., 1530 W. 13 St., Denver, Colo., LB, **$96,818**, est. over $60,000, 1.648 mi. Forest Highway Proj., 1-D1, Dolores-Rico, Montezuma Co. Bids Sept. 12. CD 9/5.

† **Pennsylvania Transformer Co.**, Canonsburg, Pa., CA, **$70,698**, Schedule 1, power transformer with 6 lightning arresters for Gunnison sub-station, Colorado Big Thompson Proj., Spec. 704S-199, COLORADO. Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo. Bids Aug. 13. CD 7/27. Awarded Sept. 5.

† **Morrison-Knudsen Co. Inc.**, 411 W. 5 St., Los Angeles 13, Calif., CA. **$897,961**. channelization Rio Grande San Marcial to narrows of Elephant Butte Reservoir, NEW MEXICO. Bureau Reclamation, Dpt. Interior, Bldg. 1 A, Denver Federal Center, Denver, Colo., Bids Aug. 30. awarded Sept. 4, CD 9/6. under LB.

† **J. F. Byrd Constr. Co.**, Los Alamos, N. M., LB. **$493,000**. runways and taxiways resurf., at Clovis Air Force Base, CLOVIS, N. M. Purch. & Contg. Officer, Dpt. of Air Force, Clovis, N. M., Bids Sept. 5. CD 8/30.

Town, Farmington, N. M. cancelled bids to have been opened Sept. 4, airport terminal bldg., FARMINGTON, N. M. CD 8/22.

BUILDINGS

LOW BIDS AND CONTRACTS

O. J. Eickoff & Sons, Crookston, Minn. LB **$644,948**, general constr. 3 story, 146x154 ft., T shape HOSPITAL, CROOKSTON, MINN. Bethesda Bd. Trustees, A. T. Aikins, administrator, Crookston, Minn. Bids Sept. 6. CD 9/5.

P. A. Laurence Co., 416 Builders Exchange Bldg., Minneapolis, Minn. LB **$412,674**. general constr. SCHOOL, GRAND MARAIS, MINN. Bd. Educ., Cook Co. School Dist., Grand Marais, Minn. Bids Sept. 8. CD 8/30.

W. Baumeister Constr. Co., Hamm Bldg., St. Paul, Minn. CA **$180,000**, General constr. 1 and 2 story, 150x257 ft. WAREHOUSE and OFFICE, 1717 University Ave., ST. PAUL, MINN. Skelly Oil Co., A. F. Larberg, supt., 605 W. 47 St., Kansas City, Mo.

▲ **Graver Constr. Co.**, 333 S. Michigan Ave., Chicago, Ill., CA, **$1,000,000**, GAS PLANT EXPANSION, OGDEN, IA. Northern Natural Gas Co., Aquila Court, Omaha, Nebr. M. C. Madsen, c/o owner, ch. engr.

▲ **Frank Morell Constr. Co.**, G. F. Morell, pres., Scarsdale, N. Y. Owner Builds. **$2,500,000**. 245 DWELLINGS and BUSINESS CENTER on 60 acre site outside city limits, KANSAS CITY, MO.

▲ **Design, Inc.**, 960 Sidney St., St. Louis 4, Mo. CA Total est. **$2,225,000**. General constr. modernization HOTEL, incl. lobby, rooms, dining rooms, office, etc., ST. LOUIS, MO. Hotel Jefferson Co. & Hilton Hotels Corp., 615 N. 12 Blvd., St. Louis, M. O. Frazier & Rafferty, Geneva, Ill., archts. CD 3/20.

Kloster Co., 4607 Beck Ave., St. Louis 16, Mo. CA Approx. **$300,000**. 1 story, bsmnt., 55x125 ft. brick, rein.-con., masonry CHURCH, 2 story, bsmnt., 39x50 ft. RECTORY, UNION, MO. Immaculate Conception Catholic Parish, Rev. Lawrence A. Rost, pastor, Union, Mo. Henry P. Hess, 4005 W. Florissant Ave., St. Louis 7, Mo., archt. Bids June 5.

Commonwealth Electric Co., Grand Forks, N. D., LB. $306,300. POWER PLANT alterations, steam generating unit, piping, GRAND FORKS, N. D. State Bd. Higher Educ., Bismarck, N. D. Bids Sept. 6. Pfeifer & Schultz, 702 Wesley Temple Bldg., Minneapolis, Minn., engrs. CD 4/19.

Kuipers Constr. Co., Mitchell, S. D., LB. **$424,450**. HOSPITAL addn., MITCHELL, S. D. Methodist State Hospital, Mitchell, S. D. Bids Sept. 7. CD 8/24.

Geer-Mauer Constr. Co., Grand Island, Neb., Owner Builds. **$85,000**. WAREHOUSE and SHOP bldg. with OFFICE adjoining, GRAND ISLAND, NEB.

Texas Electric Service Co., Colorado City, Tex., Own Forces. Approx. **$785,000**. Doubling capacity electric POWER PLANT, COLORADO CITY, TEX. CD 10/2/50.

A. W. Brunson, 1600 Plantation Dr., Dallas, Tex., LB. **$446,054**. Elisha M. Pease SCHOOL, DALLAS, TEX. Dallas Independent School Dist., 3700 Ross Ave., Dallas, Tex. Bids Sept. 10. CD 8/21.

(Continued on page 133)

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the engineered way to put an end to a pressure problem

WHEN IT COMES to containing pressures—in a header or pressure vessel or in merely blanking off a line—your safest, surest bet is a TUBE-TURN Welding Cap. Formed to 2:1 semi-ellipsoidal contours, it represents the ideal pressure-resisting closure for a cylinder. No makeshift capping method can approach its bursting strength which is actually far greater than seamless tubing of like thickness and grade of steel.

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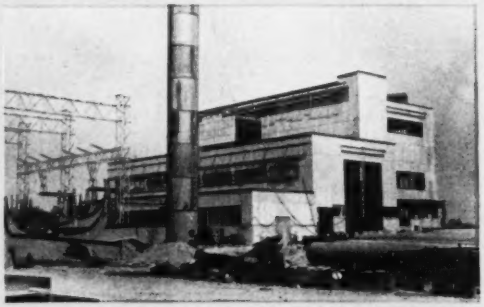
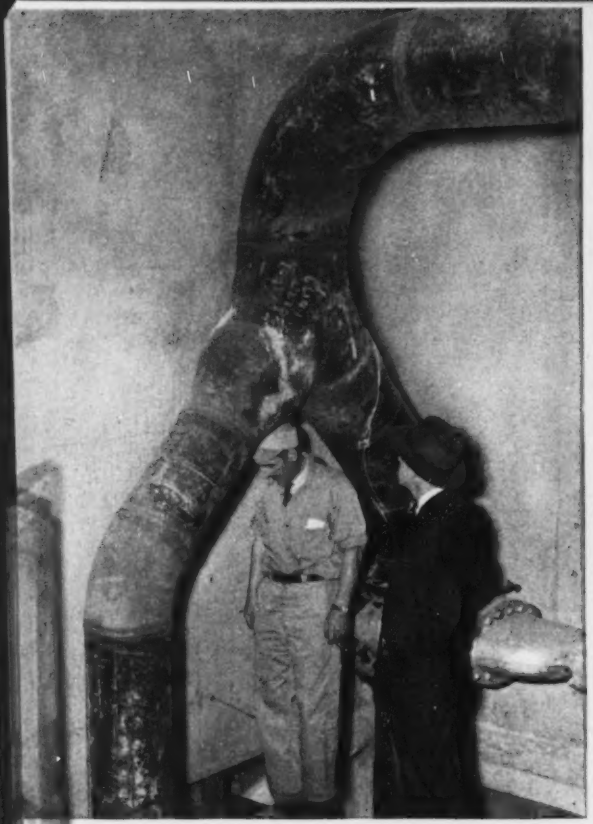
New Ford Power Plant features welded piping



Power station for Ford Motor Company's giant new engine plant and foundry, now being built in Cleveland; F. A. Fairbrother—Geo. H. Miehls, Architect and Engineer; Albert Kahn Associates, Consultants. Engine plant will be equipped with the last word in automatic machinery—to save production man-hours. The designers believe in saving maintenance man-hours too. Thus at the power plant, which will supply 360,000 pounds of 150-lb. steam per hour for heating and process, an all-welded piping system with TUBE-TURN Welding Fittings and Flanges was specified. Welded steam, air, and condensate lines are permanent and leakproof.



Here the 18" steam main from the power plant leads to a fabricated "Y" connection, then through tunnels to foundry and engine shop. One side is stepped down through a TUBE-TURN Welding Reducer to a 16" line; the other side through another TUBE-TURN Welding Reducer to a 12" line. Special "Y" connection was made by cutting and welding two 45° Welding Elbows, a job that calls for uniform wall thickness and concentricity throughout the fittings—a point of pride with TUBE TURNS, INC.

In engine shop, smaller lines designed to carry coolant oil to machine tools are also welded. Wide range of TUBE-TURN Welding Fittings and Flanges—including more than 4000 different items—simplifies installation job. Leak-proof piping will free maintenance personnel for other work.

Despite close quarters in tunnel, fabrication goes ahead swiftly. Welders and contractors like to use TUBE-TURN Welding Fittings because they know that dimensions are always accurate, thus line-up is easy. Welded lines can be fitted closely together, will make for a neat installation. With no flanges to work around, insulation can be applied easily.

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TUBE TURNS, INC.

LOUISVILLE 1, KENTUCKY

(Continued from page 130)

American Constr. Co., Rusk Bldg., Houston, Tex., CA. **$963,100.** San Jacinto HIGH SCHOOL, HOUSTON, TEX. Houston Independent School Dist., 1600 Washington St., Houston, Tex. Bids Aug. 31. CD 9/10, under LB.

BARNEY P. SLAUGHTER CO., Box 398, Austin, Tex., IB. CA **$308,000.** est. $300,000. elementary SCHOOL, KILLEEN, TEX. City and Killeen Independent School Dist., Killeen, Tex. Bids Sept. 6. CD 8/22.

Carter Craft, Inc., 1212 S. Industrial Blvd., Dallas, Tex. Purchase and lease. Approx. **$105,000.** expansion stove mfg. PLANT, PLANO, TEX. CD 9/7.

F. L. Scott & Son, 2402 W. Kings Hy., San Antonio, Tex., CA. **$505,600**, est. $450,000. SCHOOL, SAN ANTONIO, TEX. Communities Facilities Service of Housing & Home Finance Agency, c/o W. F. Sin Sindt, Div. Eng., 1016 Texas & Pacific Bldg., Fort Worth, Tex. Bids Sept. 11. CD 9/17, under LB.

McQuaid Constr. Co., 1811 Mistletoe Blvd., Dallas, Tex., LB. **$300,912.** Masonry HIGH SCHOOL, and alterations, addns. to some existing schools, WAXAHACHIE, TEX. Waxahachie Independent School Dist., Waxahachie, Tex. Bids Sept. 13. CD 8/20.

Featherston Constr. Co., 1104 Brooks St., Wichita Falls, Tex. Owner Builds. Approx. **$300,000.** HOUSING, WICHITA FALLS, TEX. CD 9/14.

A B C Constr. Co., Wichita Falls, Tex. and **J. E. Morgan & Sons**, 6010 Forest Park Rd., Dallas, Tex., LB. **$339,605.** Gymnasium, auditorium and cafeteria to Zundelowitz and Reagan Junior High SCHOOLS, WICHITA FALLS, TEX. Wichita Falls Independent School Dist., Wichita Falls, Tex. Bids Sept. 12. Ray C. Arnhold, Nacol Bldg., Wichita Falls, Tex., archts. CD 8/15.

▲ **A. A. & E. B. Jones**, 682 Wyandot St., Denver, Colo., CA, **$1,023,000,** general contract 2 story, brick Louise A. Merrill Junior High SCHOOL, DENVER, COLO. School District 1, 414 14 St., Denver, Colo. Bids Aug. 29, awarded Sept. 6. CD 9/11, under LB.

† **Haddock, Engrs, Ltd.**, P. O. Box 1691 Santa Fe N. M., CA. **$112,487,** steel, concrete block walls, SERVICE STATION, 2 gas pumps and one tank, hot mix plant paving, fencing, chain line with gates, Inv. 291-51-119, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M. Bids July 12, awarded Sept. 11. CD 6/10.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Washington**—B.A. 10/4—Bureau Reclamation, Dpt. Interior, Yakima, construct buried asphaltic membrane lining in approx. 1,000 lin. ft. of Roza Main Canal near Mile 84, approx. 5 mi. north of Prosser, Spec. 100C-137.

† **Washington**—B.A. 10/4—Bureau Reclamation, Dpt. Interior, Ephrata, earthwork, pipe lines and structures area P-2 laterals, sublaterals and wasteways, Potholes East Canal laterals, Columbia Basin Proj., approx. 12 mi. south of Othello, Spec. DC-3538.

Calif., Arcata—B.A. 10/5—City, City Hall, sanitary sewers along Burns Freeway from Third St. to Arcata Bldg.

Calif., Los Angeles—B.A. 10/9—Bd. Supervs., Los Angeles Co., 501 Hall of Records, C. I. 1416, sanitary sewers in Helco Ave., Temple City, $68,900. C. E. Arnold, co. engr. CD 9/28/50.

Calif., Los Angeles—B.A. 10/9—Bd. Supervs. Los Angeles Co., 501 Hall of Records, sanitary sewers in Kauffman Ave., C. I. 1332, $67,300. C. E. Arnold, co. engr. and surv. CD 3/9/50.

Calif., St. Helena—B.A. 10/9—City, City Hall, water chlorination dechlorination facilities, Richard M. Starns, Jr., 2054 University Ave., Berkeley, engr.

† **Washington**—B.A. 10/9—Bureau Reclamation, Dpt. Interior, Ephrata, Wash., timber bridge on West Canal, Station 18 7 plus 77.29, Columbia Basin Proj., Spec. 117C-118. L. N. McClellan, Bldg. 1-A Denver Federal Center, Denver, Colo., engr.

† **California**—GANTRY CRANE—B.A. 10/11—Bureau Reclamation, Dpt. Interior, Bldg 53, Denver Federal Center. Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Roseville, Calif., gantry crane, lifting beam for Folsom Power Plant, Folsom Power Unit, American River Div., Central Valley Proj., Spec. DS-3541. L. N. McClellan, ch. engr.

† **California**—B.A. 10/11—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing 6 vertical traveling water screens for Saucelito Irrigation District, Central Valley Proj. Spec. DS 3542; adv. ENR 9/27.

† **Oregon**—B.A. 10/11—U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash., cable trays and appurtenances for McNary Dam power house, Civeng 45-164-52-19.

† **Oregon**—B.A. 10/11—U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash., upstream miter gate for navigation lock, McNary Dam, CIVENG 45-164-52-14.

† **Oregon**—B.A. 10/11—U. S. Eng., 628 Pittock Block, Portland, Zone 5, 3 penstock gates and guides and 3 penstock gate hoists with appurtenances and services of a supervising erector, Serial No. CIVENG 35-026-52-77.

† **Oregon**—B.A. 10/11—U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash., unwatering pumps for McNary Dam Powerhouse, CIVENG 45-164-52-25.

† **Wash., Spokane**—TAXIWAY—B.A. 10/12—U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, taxiway extension, at Geiger Air Force Base, Inv. 52-6. Extended date. CD 8/22.

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† **Oregon**—B.A. 10/16—U. S. Eng., Bldg., 602, City-County Airport, Walla Walla, Wash., station service and fishway transformers for McNary Dam, Civeng 45-164-62-16.

† **Oregon**—B.A. 10/16—U. S. Eng., 628 Pittock Block, Portland, Zone 5, mfg., del. f.o.b. Gates, Ore. penstock gate and guides, penstock gate hoist and services of a supervising erector, Serial No. CIVENG 35-026-52-42.

† **Oregon**—B.A. 10/25—U. S. Eng., Bldg. 602-City-County Airport, Walla Walla, Wash., fish collection sys. machinery, gates and stop logs, McNary Dam Powerhouse, McNary, Serial No. CIVENG 45-164-52-20.

Calif., Laguna Beach—B.A. 10/31—Laguna Beach County Water Dist., 306 3 St., imprvt. Dist. 2 water mains, reservoir, pump plant. Approx. $34,000. Plans deposit $10. CD 11/22/49, under LB.

Calif., Los Angeles—B.A. 11/14—Los Angeles County Sanitation Dist. 2, 2020 Beverly Blvd., 4500 ft. 54 in. re.in.-con. pipe, Joint Outfall "D" Unit 3, Trunk Sewer, Approx. $60,000. A. M. Rawn, dist. engr.

BIDS ASKED—BUILDINGS

Calif., Los Angeles—NURSES HOME—B.A. 10/9—Bd. Supervs. Los Angeles Co., 501 Hall of Records, nurses home $500,000. Paul R. Williams & Adrian Wilson, 3557 Wilshire Blvd, engrs. CD 6/11, under LB.

Calif., Riverbank—SCHOOL—B.A. 10/9—Riverbank Elementary School Dist., Riverbank, Cardoza School. $350,000. Plans deposit $25. Anderson & Simonds, 2800 Park Blvd., Oakland, archts.

▲ **Calif., San Lorenzo**—HOSPITAL—B.A. 10/11—Eden Township, Hospital Dist., 453 Paseo Grand, San Lorenzo, hospital north of Castro Valley between Stanton Ave. and Lake Chabot Rd. $3,500,000. Extended date. Stone & Malloy and S. P. Marraccini, 619 California St., San Francisco, archts. CD 9/12.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

The California Co., Utah Oil Bldg., Salt Lake City, Utah. Own Forces. Approx. **$108,000.** water distr. sys. at Red Wash oil field for oil drilling purposes, in southeastern Uintah Co., UTAH.

Young & Smith Const. Co., Beason Bldg., Salt Lake City, Utah. CA **$93,408**, repairing runways and taxiways, SALT LAKE CITY, UTAH. Salt Lake City Corp., c/o Irma Bitner, recdr. City and County Bldg., Salt Lake City, Utah. CD 8/28.

ARIZONA—State Hy. Dpt., Phoenix.
Sam Xavier Rock & Sand Co., 601 W. 22 St., Tucson, Ariz., LB, **$254,668**, bit. plant mix 2 mi. Tucson Access Freeway, Pima Co. Bids Sept. 11. CD 9/4.

NEVADA—Dpt. Hys., State Office Bldg. Carson City, George E. Miller, 111 Morrill Ave., Reno, Nev., CA. **$125,319**, construct portion State Hy. System, from U. S. Naval Ammunition Depot boundary to junction with U. S. 95 in Hawthorne, Rte. Sect. 664, Control Sect. MI-12, Proj. No. S-664 (4) State Hy. Contr. 806, Mineral Co. Bids Sept. 13. CD 9/6.

▲† **Peter Kiewit Sons Co.**, Longview, Wash., LB **$1,467,865**, est. $2,056,012, constr. levees on left bank of Columbia River, Pasco, WASHINGTON. U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash. Bids Sept. 13. CD 8/9.

B. H. Samuel & Son, 2435 N.E. 37 St., Portland, Ore., CA, $70,588, est. $180,611, rehabilitate railroad trackage at Auburn General Depot, ENG 45-108-52-33, AUBURN, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Sept. 11. CD 9/4.

A. E. Bleakney, 8051 Corliss Ave., Seattle, 3, Wash., LB, **$236,438**, est. $175,000, remodel Alki NATATORIUM, SEATTLE, WASH. P. R. Hendricks, city purch. agt. 511 County-City Bldg., Seattle, 4, Wash. Bids Sept. 11. CD 8/17.

Carbon Bros. & Piath, 3430 N. Cook St., Spokane, Wash., CA, **$35,650**, second addition to Lincoln Heights pumping station, SPOKANE, WASH., City, City Hall, Spokane, Wash. Bids Sept. 13.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles.
E. L. Yeager Co., Box 87, Riverside, Calif., LB, **$729,505**, grading, surf. 10.5 mi. between Antelope Rd. and Route 64, Riverside Co. Bids Sept. 13.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento.
A. G. Raisch Co., Box 458, San Rafael, and **Lew Jones Constr. Co.**, 1535 S. 10 St., San Jose, Calif., LB, **$1,059,979** hy. imprvs., wid'n. rein.-con. bridge, constr. bridge, installing hy. lighting etc. 2 mi. between Myrtle Ave., San Rafael and Calif. Park Overhead, Marin Co.
Munn & Perkins, P. O. Box 1092, Modesto, Calif., LB **$225,119**, surf. 7.2 mi. between Lake Co. line and Calistoga, Napa Co.
Granite Constr. Co., Box 900, Watsonville, Calif., LB, **$93,945**, grading, surf., seal coat 1.1 mi. Watsonville Santa Cruz Road between Freedom and Watsonville, Santa Cruz. Bids Sept. 12. CD 8/23.
K. B. Nicholas, P.O. Box 551, Ontario, Calif., LB **$92,270**, sewage treatment plant, etc. at Calif. Institution for Women, CORONA, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids Sept. 6. CD 8/7.
Ed. Green, 3001 Coolidge Ave., Los Angeles, Calif., LB **$198,096**, Out'all Sewers 1 and 2 and revise mains at college, GOLETA, CALIF. Santa Barbara College University of California, Goleta, Calif. Bids Sept 11. CD 8/29.
Walter C. Groshing, 4335 California Ave., Long Beach, Calif. CA, **$124,595**, railroad track and earthfill at

(Continued on page 136)

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(Continued from page 134)

Seaside Blvd., LONG BEACH, CALIF. Long Beach Harbor Comm., 1333 El Embarcadero, Long Beach, Calif. R. R. Shoemaker, port engr. Awarded Sept. 11.

Miloswitch & Zarukica, 1533 W. Olympia Blvd., Montebello, Calif., CA, **$76,488**, 7,600 ft. 21 and 27 in. rein.-con. pipe, Joint Outfall E Unit 4, Sect. 1, Lynnwood, LOS ANGELES, CALIF. Los Angeles Co. Sanitation Dist. 2, 2020 Beverly St., Los Angeles, Calif. Bids Sept. 12. CD 8/22.

F. S. Rolandi, Jr., 617 Montgomery St., San Francisco, Calif., CA, **$264,346**, municipal sewage treatment plant, MOUNTAIN VIEW, CALIF. City, City Hall, Mountain View, Calif. Bids Sept. 12, awarded Sept. 13. CD 8/30.

James E. Fuller, 3465 Encina Ave., Oakland, Calif., LB **$83,830**, playground at Garfield School ground Foothill Blvd. and 23 Ave., OAKLAND, CALIF. City, City Hall, Oakland, Calif. CD 3/5/45.

F. S. Rolandi, Jr., Inc., 617 Montgomery St., San Francisco, Calif., LB, **$216,506** less deductions; **$247,682** without deductions sewage treatment sys. imprv., RED BLUFF, CALIF. City, City Hall, Red Bluff, Calif. Bids Sept. 13. CD 8/30.

State Div. Architecture, P. Wks. Bldg., Sacramento, Calif., rejected bids ground imprvs., constr. lawns, sprinkler system at State Capitol addition, SACRAMENTO, CALIF. L. B. **$82,725**. CD 9/18, under LB.

Brighton Sand & Gravel Co., P. O. Box 604, Sacramento, Calif., LB, **$82,725**, ground imprvs. at State Capitol Annex, SACRAMENTO, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif.

▲† **Swinerton & Walbert**, 225 Bush St. and **Ben C. Gerwick**, Lake Mercer Blvd., both San Francisco, Calif., LB **$982,167**, Item 1, **$672,802**, Item 2, **$820,182**, Item 3, **$583,917**, Item 4, **$309,656**, Item 5, installing flat concrete flooring on graving docks at San Francisco Naval Shipyard, Drydocks 2 and 3, NOY 27964, Spec. 29637, SAN FRANCISCO, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids Sept. 6.

▲† **A. B. C. Constr. Co.**, 12420 S. Bloomfield Ave., Norwalk, Conn., LB, **$2,034,310**, storage, distribution and loading facilities, Spec. 30837, SAN PEDRO, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids Sept. 13.

Cox Bros. Constr. Co., Box 36, Stanton, Calif., LB **$87,661**, well protection for four wells located on property at end of Siphon Rd., WHITTIER CALIF. City, City Hall, Whittier, Calif. CD 4/26/48.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **G. A. Whitmeyer & Sons Co.**, P. O. Box 857, Ogden, Utah, **$1,363,103**, general constr. HIGH SCHOOL, OGDEN, UTAH. Bd. Educ., 2351 Grant Ave., Ogden, Utah, Bids Aug. 9. CD 8/20, under LB.

▲ **Jack Baskin, Inc.**, Los Angeles, Calif., LB **$2,417,316**, construct, manage and finance, 300-unit HOUSING at Davis-Monthan Air Force Base, TUCSON, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. CD 2/28.

Modern Home Builders, 3849 34 Ave. W., Seattle, Wash., LB **$329,504**, 1 and 2 story, steel, and masonry HIGH SCHOOL addns., MOSES LAKE, WASH. School Dist. 161, Moses Lake, Wash. Bids Sept. 11. CD 8/30.

Tacoma Boatbuilding Co., 2412 E. D. St., Tacoma, Wash. Day Labor, **$85,000**, rebuilding first unit boat building PLANT, TACOMA, WASH. CD 9/4.

† **Westinghouse Electric Corp.**, U. S. Bank Bldg., Portland, Ore., LB **$468,292**, unit SUB-STATIONS for Units 1 and 14, McNary Powerhouse, Inv. CIVENG 52-2, OREGON. U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash. Bids Sept. 14. CD 8/2.

Flower & Shirley & Roberts C. Allen, 2150 Princeton Ave., Los Angeles, Calif., CA, **$590,000**, Junior High SCHOOL, CORCORAN, CALIF. Corcoran Union Elementary School Dist., 1300 Letts Ave., Corcoran, Calif. Bids Sept. 11. CD 8/30.

▲ **Louis C. Dunn**, 3101 Wilshire Blvd., Los Angeles, Calif., CA **$1,129,500**, 1 story, steel AIRCRAFT BLDG. Unit 2, EL SEGUNDO, CALIF. Douglas Aircraft Co., Inc., 827 Lapham St., El Segundo, Calif. Van Dyke & Barnes, 2234 Beverly Blvd., Los Angeles, engrs. Awarded Sept. 12. CD 9/5.

Harris Constr. Co., P. O. Box 109, Fresno, Calif., LB **$496,822**, childrens HOSPITAL and GUIDANCE CLINIC, FRESNO, CALIF. Valley Children's Hospital Assn., Hotel California, Fresno, Calif. Bids Sept. 7. CD 8/14.

† **Parker, Steffens & Pearce**, 135 South Park, San Francisco, Calif., LB, **$324,500**, LAUNDRY No. 65, Spec. 51163, at Veterans Administration Hospital, LIVERMORE, CALIF. Veterans Administration, Munitions Bldg., Wash., D. C. Bids Sept. 11. CD 8/1.

H. Hart, 4149 Farmdale Ave., Los Angeles, Calif., CA, **$969,300**, 153 frame, stucco DWELLINGS in Tract 16926, LOS ANGELES, CALIF. Lee-Hart Development Co., 401 S. Rossmore Ave., Los Angeles, Calif. Lee & Lee, 401 S. Rossmore Ave., Los Angeles, Calif., archts.

Struction, 962 N. LaCienega Blvd., Los Angeles, Calif., LB, **$569,987**, 150x150 ft., steel cotton WAREHOUSE, in Wilmington, LOS ANGELES, CALIF. City Harbor Dpt., City Hall, Los Angeles, Calif. Bids Sept. 12. CD 8/9.

† **Zoss Constr. Co.**, 1034 N. Cole Ave., Los Angeles, Calif., CA, **$87,188**, est. $150,000, rehabilitation BOILER PLANT, and steam sys. at Camp, ENG 04-353-52-14, SAN LUIS OBISPO, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Sept. 11. CD 8/29.

Halper Constr. Co., 739 N. Highland Ave., Los Angeles, Calif., CA, **$421,960**, 61 frame, stucco DWELLINGS, Flomar, Cullen, Cedar Springs and Starbuck Sts.,

WHITTIER, CALIF. Colima-Parkwood, 739 N. Highland Ave., Los Angeles, Calif. H. C. Light, 7551 Melrose Ave., Los Angeles, Calif., archt.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Civil Aeronautics Admin.,** Anchorage, Alaska rejected bids Aug. 21, VHF stations at Angoon and Rodgers Point, Inv. No. 852-214, ALASKA, LB. $531,336. Will readvertise. CD 9/10 under LB.

† **Valley Constr. Co.,** 7708 Rainier Ave., Seattle, Wash., LB. $111,077, water sys. extens., replacement, ANCHORAGE, ALASKA. Alaska P. Wks., Dpt. Interior, Juneau, Alaska. Bids Sept. 12. CD 8/15.

† **Valley Constr. Co.,** 7708 Rainier Ave., Seattle, Wash., LB. $226,829, sewer extens., Proj. 50-A-55, ANCHORAGE, ALASKA. Alaska P. Wks., Dpt. Interior, Juneau, Alaska. Bids Sept. 12. CD 9/17.

† **Hayes & Whitely,** Juneau, Alaska, LB. $75,482. imprv. water supply sys., Proj. 50-A-76, HOONAH, ALASKA. Alaska P. Wks., Dpt. Interior, Juneau, Alaska. Bids Sept. 12. CD 8/15.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Clinton—MESS—B.A. 10/9—R. P. Opie, c/o Defence Constr. Ltd., 441 Queens Quay W., Toronto, 2B, Ont., standard OR Mess at R.C.A.F. Station, Job 1554. Approx. $700,000. Plans deposit $50. S. M. Connolly, c/o owner, engr.

Yukon Territory, Dawson—B.A. 10/17—Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., reconstr. dam, Lewes River. Approx. $215,000. Plans deposit $25. R. Blais, c/o owner, engr. Bids 8/8 rejected. CD 7/27.

BIDS ASKED—BUILDINGS

Yukon Territory, Whitehorse—HOUSING—B.A. 10/2—D. W. Laird, engr., Defense Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man., 49 housing units at Army Camp, Approx. $350,000. Plans deposit $50.

▲ **Newfoundland**—DETACHMENT—B.A. 10/10—Secy., Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., R.C.M. Police Detachment Bldgs., at Baie Verte, Springdale, Twillingate, Fogo, and Hampden. Approx. $1,000,000. Plans deposit $25. G. Brault, c/o owner, archt.

Ont., Chatham—LABORATORY—B.A. 10/3—Secy., Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., Dominion Entomological Laboratory, Approx. $300,000. G. Brault, c/o owner, engr. Plans deposit $50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

BRITISH COLUMBIA—Province of B. C., Douglas Bldg., Victoria, B. C.

Marwell Constr. Co., 1500 West Georgia St., Vancouver, B. C., LB, $206,314, 5.4 mi. road from Hopkins Landing to Port Mellon. Bids Sept. 11. CD 9/7.

ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto, Ont., **Muskoka Constr. Co.,** Sudbury, Ont., CA, $325,000 new 4-lane highway between Sudbury and Copper Cliff 40 ft. wide, Sudbury warded Sept. 13. CD 4/27/44.

Preload Co. of Canada Ltd., 7325 Decarie Blvd., Montreal, Que., CA, $34,142, centrifugally placed concrete lining in a 42 in. diam. steel water main OTTAWA, ONT. City, Ottawa, Ont. Bids July 24. CD 7/5.

BUILDINGS

LOW BIDS AND CONTRACTS

W. C. Wells Constr. Co. Ltd., 140 Ave. N. F., Saskatoon, Sask., CA, Approx. $650,000. 288-man semi-permanent BARRACK BLOCK at Army Camp, WAINWRIGHT, ALTA. Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. Bids Aug. 14. CD 7/31.

Associated Contractors Ltd., 815 W. Hastings St., Vancouver, B. C., CA, $152,686, central HEATING PLANT for army camp at CHILLIWACK, B. C. Defence Constr. Ltd., 360 Homer St., Vancouver, B. C. Bids July 31, awarded Sept. 13. CD 7/17.

McKinty & Sons, 2020 Douglas St., Victoria, B. C., CA, $314,671, one Junior-Senior HIGH SCHOOL and one elementary SCHOOL, SIDNEY, B. C. Saanich School Dist. 63, Sidney, B. C. Sharp & Thompson, Berwick, Pratt, 1553 Robson St., Vancouver, B. C., archts. Awarded Sept. 10.

▲ **Richard & B. A. Ryan Ltd.,** 49 Main St., Fairville, St. John, N. B., CA, $20,000,000, expansion program and new pulp mill PLANT with daily capacity 250 tons kraft pulp, ST. JOHN, N. B. St. John Sulphite Ltd., Fairville, N. B. Awarded Sept 12.

Huron Constr. Co., Chatham, Ont., CA, $475,000 1 story, 60x270 ft., 60x100 ft., brick, steel SCHOOL, DRESDEN, ONT. Dresden District High School Bd., W. Lindsay, chn., Florence, Ont. Bids Aug. 23, awarded Sept. 15. CD 8/17.

Bennett Pratt Ltd., 5 Maple Leaf Dr., Weston, Ont., CA $817,516, composite health SCHOOL, Blythwood Rd., TORONTO, ONT. Bd. Educ., City, 155 College St., Toronto, Ont. Bids Sept. 10, awarded Sept. 13. CD 9/17, under LB.

H. J. Tubby & Son, Ltd., 146 22 St. W., Saskatoon, Sask., CA, $160,000, screen and pumphouse addn. to POWER PLANT plus intake well in river, circulating water lines to and from river, misc. piping, SASKATOON, SASK. Saskatchewan Power Corp., 1739 Cornwall St., Regina, Sask. Awarded Sept. 13. CD 9/5.

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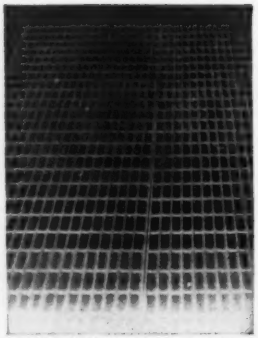

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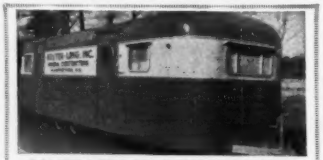

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FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

Australia—B.A. 10/16—At office Secy. State Rivers & Water Supply Comn., 100 Exhibition St., Melbourne, Part A, approx. 10,000,000 cu. yd. earthwork, misc. minor drainage works, road deviations and fencing; Part B, regulating structures, incl. control equip. major cross-drainage works and some 50 road and railway bridges approx. 30,000 cu. yds. rein.-con. involved in these structures. For the Waranga Western Main Channel Enlargement. Extended date. CD 8/21.

PROPOSED PROJECTS

WATER SUPPLY

▲ Md., Hyattsville — Washington Suburban Sanitary Comn., Hamilton St., 6 billion gal. reservoir and Rocky Gorge Dam on Patuxtent River on line between Prince George and Howard Counties, 1¼ mi. north of Laurel, alternate bids for (1) concrete, slab and buttress type dam, and (2) gravity dam, approx. $3,000,000, Amoursen Engineering Corp., 295 Madison Ave., New York, N. Y., consult. engrs. CD 10/10/49.

Mo., Richmond—City, water sys. imprvs., incl. treatment plant, reservoir, etc. $350,000, E. T. Archer, railway Exchange Bldg., Kansas City, Mo., consult. engr. CD 10/8/47.

Utah, Roosevelt—City, c/o H. P. Edwards, mayor, voted bonds water sys. imprvs., incl. drilling wells and pipe lines. $225,000. Caldwell & Richards & Sorenson, Templeton Bldg., Salt Lake City, consult. engrs. CD 11/19/45.

SEWERS, WASTE DISPOSAL

Conn., New London—City, Sewer Dpt., City Hall, elimination outfall sewers, Farnsworth, Eight and State Sts. $390,000. Keis & Holroyd, 257 Broadway, Troy, N. Y., consult. engrs. CD 2/9/50.

▲ Mich., Flint—City, Harold M. Kinder, mgr., renovate sewage plant, $600,000; Western Rd. Trunk Sewer, $535,000; Home Ave. Storm Outlet, $55,000; sewer replacement, $350,000; Whaley Park and Thrift City Sewers, $385,000, South Dort Hy. Trunk Sewer, $115,000. CD 11/27/50.

N. Y., Brooklyn—President Brooklyn Boro, Boro Hall, Zone 1, plans by Charles A. Reidel, c/o owner, 2 story sewage pumping station, 101-105 19 St. $150,000.

▲ O., Akron—City, City Hall, $5,000,000 bond election Nov. 6, sewer expansion program. CD 11/16/50.

▲ O., Toledo—City, Arnold V. Finch, mgr., $10,000,000 bond election Oct. 2, secondary sewage treatment plant. John H. Davis, city engr. CD 6/19.

Pa., Brownsville—Brownsville Boro, sewage collection sys. and disposal plant, 12,000 ft. 6- to 36-in. terra cotta pipe. $478,200. Capitol Eng. Co., Dillsburg, engr. CD 10/3/45.

BRIDGES

O., Lisbon—Comrs. Columbiana Co. and State Hy. Dpt., Columbus rebuild Route 30 bridge on western village limits. $300,000. CD 8/19/49.

▲ Pa., Fallsington—Pennsylvania R.R., J. L. Gressitt, ch. engr., Broad St. Station Bldg., 1617 Pennsylvania Blvd., Phila., railroad bridge in Falls Twp. $1,590,000.

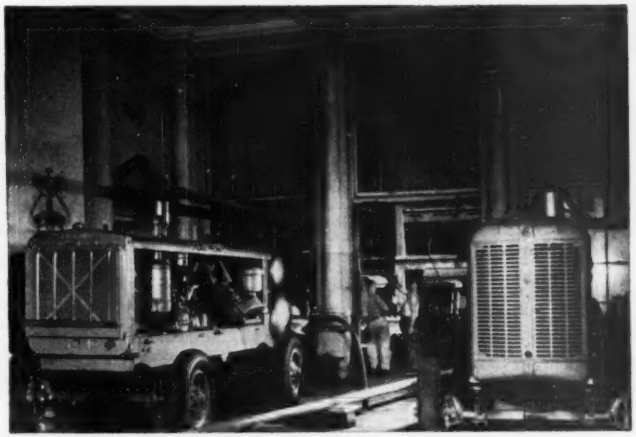
STREETS AND ROADS

▲ Ill., Chicago—City, City Hall, Zone 2, Congress Expressway—rerouting of Douglas Park Elevated Railway; Congress Street Expressway—arcading of Roosevelt College (formerly Auditorium Hotel) and Congress Hotel booth facing Michigan Ave.; Congress Street Expressway—double decking Wacker Dr. from Congress St. to Monroe St.; Congress Street Expressway—constr. subway portal; Congress Street Expressway—excavation of route between Des Plaines and Halsted Sts.; Congress Expressway—modification La Salle Street Railroad Station, Approx. $850,000 each. Dpt. Subways & Superhighways, 20 N. Wacker Dr., Chicago 6, Ill., consult. engr. CD 4/26/45.

Ia., Council Bluffs—City, 16 projects for paving mostly 6 in. c. conc. with some crushed rock surf., $630,377. Henningson, Durham & Richardson, Standard Oil Bldg., Omaha, Neb., consult. engrs. CD 4/17.

(Continued on page 141)

RITZ Carlton



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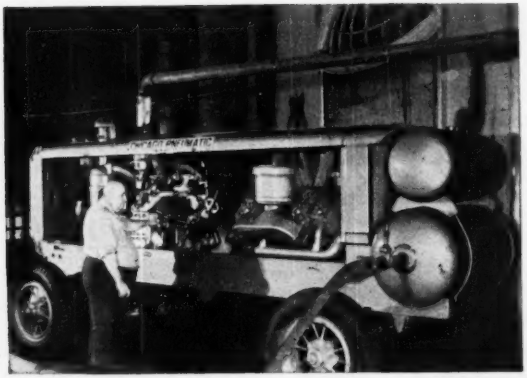

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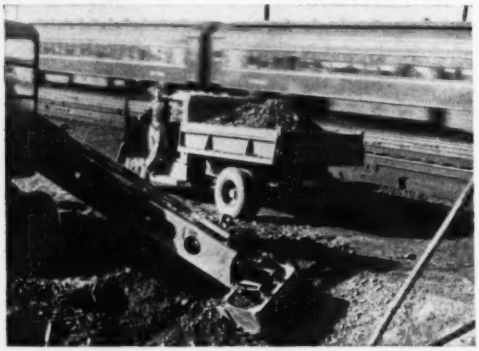

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(Continued from page 138)

NEBRASKA—State Dpt. Roads & Irrigation, Lincoln, Gordon and Ellsworth—graveling 23½ mi. State Hy. 27. $400,000. H. L. Aitken, c/o owner, state hy. engr.

N. J., Camden—City Comn., Camden, plans completed paving Park Blvd., $60,000; paving Vesper Blvd., Approx. $60,000.

N. Y., Arcadia—Town, 22.26 mi. roads, $182,000.
N. Y., Bovina—Town, 21.3 mi. roads, $166,000.
N. Y., Butler—Town, 16.1 mi. roads, $137,800.
N. Y., Colchester—Town, 44.35 mi. roads, $361,450.
N. Y., Davenport—Town, 24.05 mi. roads, $167,350.
N. Y., Delhi—Town, 43.46 mi. roads, $356,450.
N. Y., Deposit—Town, 13.9 mi. roads, $115,400.
N. Y., Franklin—Town, 22.6 mi. roads, $154,000.
N. Y., Hamden—Town, 26 mi. roads, $182,000.
N. Y., Hancock—Town, 22 mi. roads, $154,000.
N. Y., Harpersfield—Town, 23.8 mi. roads, $179,500.
N. Y., Huron—Town, 21.15 mi. roads, $109,540.
N. Y., Kortright—Town, 23.1 mi. roads, $165,450.
N. Y., Meredith—Town, 33 mi. roads, $231,000.
N. Y., Middletown—Town, 31.5 mi. roads, $231,085.
N. Y., Palmyra—Town, 21.79 mi. roads, $166,400.
N. Y., Rose—Town, 22.6 mi. roads, $214,400.
N. Y., Roxbury—Town, 25.75 mi. roads, $180,250.
N. Y., Scriba—Town, 16.05 mi. roads, $115,264.
N. Y., Sidney—Town, 33.3 mi. roads, $248,644.
N. Y., Tompkins—Town, 40 mi. roads, $280,000.
N. Y., Voleny—Town, 28.2 mi. roads, $237,172.
N. Y., Walton—Town, 21.1 mi. roads, $147,800.

Okla., Oklahoma City—City, City Hall, resurf. S. Robinson from Grand Ave. to S. E. 15 St. $100,000. H. E. Chase, city engr. CD 5/15/50.

Tex., Abilene—City, by-passes in and around city. $350,000. S. J. Treadway, Abilene, consult. engr.

Tex., Houston—Frank W. Sharp, 2202 Rosslyn St., street constr. and paving, 300-acre tract adjacent Oak Forest for development, $100,000.

▲ **B. C., Vancouver**—City, paving sundry streets with two of larger jobs being bit. surf. Oak St. from Broadway to Marine Dr.; Broadway from Granville to Main St., $1,550,000. J. C. Oliver, City Hall, engr. CD 9/28/43.

EARTHWORK, WATERWAYS

▲ **California**—Southern California Edison Co., 601 W. 5 St., Los Angeles, Calif., constructing Vermilion Valley Dam across Mono Creek, Fresno Co. $8,500,000.

N. Y., Southampton and Brookhaven-Bureau Contracts & Accounts, Albany, imprv. stabilizing Moriches and Shinnecock inlets in Great South Beach, $900,000.

▲ **Tex., Edinburg-Hidalgo** County Water Control & Imprvt. Dist. 15, c/o F. G. Haverkamp, Box 974, McAllen, voted bonds, canals east from reservoir, $103,250; distr. main canals distr. sys., incl. pipe, wells, embankment, lining of structures, etc. $1,042,307; secondary canal lines Santa Cruz area, $95,655; Edinburg Earthen Canal, $120,000. Sigler• Clark & Winston, Weslaco, consult. engrs. CD 8/8.

AIRPORTS

▲† **Colo., Denver**—GENERAL UTILITIES—U. S. Eng., 1709 Jackson St., Omaha, Neb. plans by Rocky Mountain Engineering Co., 1441 Welton St., general utilities and refueling and bulk storage facilities at Lowry Air Force Base. $2,110,000. CD 8/28.

† **Del., Dover**—PARKING APRON, etc.—Dpt. Army, 121 N. Broad St., Phila., Pa., plans by Whiteside Foster Damon & Doane, Inc., du Pone Bldg., Wilmington, parking apron, fuel storage facilities, barracks, utilities, hospital and warehouse, Dover Air Force Base, $25,400,000.

▲† **Del., New Castle**—AIRFIELD PAVING, etc.—Dpt. Army, 121 N. Broad St., Phila., Pa., airfield paving, fuel storage and dispensing facilities, aircraft maintenance shop, troop facilities, family housing, etc., New Castle County Airport, $1,631,000. Albright & Friel Inc., 121 S. Broad St., Phila., Pa., consult. engr.

▲† **Me., Brunswick**—JET FIELD—Dist. Pub. Wks. Office, First Naval Dist., 495 Summer St., jet field at Naval Air Station, $9,000,000. Fay, Spofford & Thorndike, 11 Beacon St., Boston, Mass., consult. engrs.

▲† **Mass., Weymouth**—AIRPORT FACILITIES—Pub. Wks. Office, First Naval Dist., 495 Summer St., Boston, addnl. facilities at Naval Air Station, $2,500,000, Charles T. Main, Inc., 80 Federal St., Boston, consult. engr.

▲† **N. H., Portsmouth—Newington**—AIR BASE—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., Air Force Base. Approx. $40,000,000.

▲† **N. J., Wrightstown**—BARRACKS, etc.—Dpt. Army, 121 N. Broad St., Phila., Pa., plans by Frank Grad & Son, 187 Market St., Newark, N. J., barracks, headquarters bldgs. and complementary facilities, $18,041,130; plans by Fridy & Gauker, Truscott & Fridy, 1321 Arch St., Phila., Pa., buildings, warehousing, railroad spur, sewage disposal plant, roads and utilities, $5,303,600; rehabilitation various facilities, $230,000; plans by Erwin Gerber, 1180 Raymond Blvd., Newark, barracks and supporting facilities, $16,539,000, all foregoing at McGuire Air Force Base.

▲† **N. Y., Geneva**—AIR BASE—U. S. Eng., Lafayette St., New York, paving, fuel and dispensing facilities, communications and airfield lighting, operational, training, troop and administration facilities at Samp-

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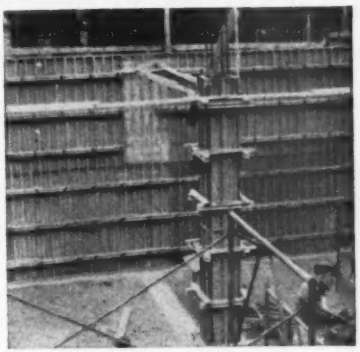

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son Air Force Base. $9,095,000. McFarland & Brown, Press Bldg., Binghamton, engrs.-archts.

▲† N. Y., Mitchell Field—HOUSING, etc.—U. S. Eng., Lafayette St., New York, troop housing, facilities at Mitchell Air Force Base, $1,191,000. Greenburg & Ames, 565 Fifth Ave., New York, Zone 17, engrs.-archts.

▲† N. Y., Rome—AIR BASE—U. S. Eng., Lafayette St., New York, fuel storage and dispensing sys., communications and training facilities, utilities research, development and test facilities, storage at Griffiss Air Force Base, $8,693,000. Alexander D. Crosett, 27 William St., New York, Zone 5, engr.-archt.

▲† N. Y., West Hampton Beach—AIRPORT—U. S. Eng., Lafayette St., New York, paving, fuel storage and dispensing facilities, airfield lighting, operational, maintenance, troop and administration facilities, family housing, utilities and storage at Suffolk County Airport, $1,982,000. Weiskopf & Pickworth, 45 W. 45 St., New York, Zone 19, engrs.-archts.

▲†R. I., Quonset Point—AIR STATION—Pub. Wks. Office, first Naval Dist., 495 Summer St., Boston, Mass. addnl. facilities, Naval Air Station, $7,500,000. Charles A. Maguire & Assoc., 1015 Turks Head bldg., Providence, consult. engrs.

†S. D. Rapid City—SQUAD OPERATIONS BLDG.—U. S. Eng., 1709 Jackson St., Omaha, Neb., squad operations bldg. Group Admin. Bldg., cold storage and meat cutting bldg., security storage bldg., 35,800 sq. ft. total floor space, at Rapid City Air Force Base. $706,000. Patrick D. Horgan, Architect and Engineering Assoc., 1170 Elati St., Denver, Colo., consult. engrs. and archts. CD 8/30.

Tenn., Nashville—RUNWAY—Tennessee National Guard, State Capitol, exten. runway 700 ft. at Berry Field, $400,000.

Tex., Dallas—HANGAR—City, City Hall, Main and Harwood Sts., construct 2nd hangar at Redbird Airport, $100,000 Collins Radio Co., 1937 Irving Blvd., Dallas, Tex., lessees. CD 10/16/46.

▲† Tex., Lackland Air Force Base (Br. San Antonio)—AIR BASE BLDGS., etc.—U. S. Eng., 606 Santa Fe Bldg., Galveston, barracks or dormitories, $8,000,000; mess halls, $3,000,000; warehousing, $2,500,000; WW, $75,000; sanitary sewers, $100,000; storm sewers, $90,000; gas distr. sys., $85,000; site earthwork, $150,000; drainage, $100,000; area lighting, $100,000; administration-operational bldgs. $1,500,000; academic bldgs. $2,000,000. Chase & Baen, 1309 Anita Ave., Houston, consult. engrs.-archts. CD 7/13.

▲† Alaska—HOUSING, etc.—Pub. Wks. Office, Seventeenth Naval Dist., Kodiak, housing and facilities for Naval Operating Base, Kodiak, $7,677,800; Naval Air Station, Kodiak, $1,936,500; Naval Station at Adak, $2,810,000.

▲† Alaska—HOUSING—U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, army troop housing, practical and supporting facilities at unspecified points, $13,506,200; plus $13,506,200 at Big Delta, $1,571,900 at Eielson Air Force Base, $10,370,000 at Ladd Air Force Base, $12,009,930 at Fort Richardson and $84,000 at Skagway; air force house and facilities at Eielson Air Force Base, $41,625,000; Elmendorf Air Force Base, $97,007,000; Ladd Air Force Base, $67,106,000; Naknek, $750,000. CD 11/27 and 3/14.

Ont., Earlton—RUNWAY—Dpt. Transport, Hunter Bldg., Ottawa, 200x6,000 ft. runways extens. with overruns at each end of 1,000 ft. $600,000.

Ont., Killaloe—RUNWAYS.—Dpt. Transport, Hunter Bldg., Ottawa, 200x6,000 ft. airport runways exten., for use of Canadian military jet planes with overruns at each end of 1,000 ft. $600,000.

Ont., Sudbury—RUNWAY—Dpt. Transport Hunter Bldg., Ottawa, 200x6,000 ft. airport runways exten., with overruns at each end of 1,000 ft. $600,000.

LATIN AMERICA

Brazil, Belo Horizonte—Assis Chateaubriand, Diarios Associados, Rio De Janeiro, plans television station. $500,000.

▲ British Guiana, Aurora—Syndicate, c/o Colonial Secretary, Georgetown, plans saw mill and plywood factory on 35 acre site. $1,500,000.

▲ B. W. I., Bridgetown—Barclays Bank, London, England and Port of Spain, Trinidad, plans bank. $1,000,000.

Chile, Tocopilla—Republic of Chile, Santiago, plans construction landing facilities in 8 Chilean ports between Tocopilla in the north and Talcahuano in the south. $750,000. Pub. Wks. Dpt., Santiago, engr.

Mexico, Guanajuato—State Govt., Palacio del Estado, Guanajuato, (Lic. Aguilar y Maya, gov.) plans water works. $500,000.

Mexico, Jalapa—State Govt., Marco Antonio Munoz, Gov. Palacio del Estado, Jalapa, plans olympic stadium. $425,000.

▲ Mexico, Matamoras—Mexican Federal Govt., c/o Dpt. Navy, Mexico City, plans port constr. on Laguna Madre. $1,000,000. Jose Prian, c/o owner, engr. CD 12/11/50.

Mexico, Mexico City—Fibraces, S.A. Paseo de La Reforma, 95-623-628, plans wood products factory. $250,000.

▲ Mexico, Mexico City—Dr. Manuel Moranchel, Bucareli, 187, Mexico City, plans 14 story and six 6 story annexes medical-surgical hospital and disease prevention service. $3,000,000.

PUBLIC BUILDINGS

▲ Calif., Richmond—HOUSING—Richmond Housing Auth., 219 Commercial St., plans by Donald L. Harrison, 225 Broadway, 300-unit low-rent housing. $2,250,000. CD 10/18/50.

▲ Calif., San Bernardino—SCHOOL—San Bernardino High School Dist., 799 "E" St., plans by Walter L. Culver Parker-Allen Assoc., 262 E. Base Line Ave., 16 one story re n.-con. Perris Hill Senior High School buildings, $1,500,000. CD 8/21/50.

† Del., Bethany Beach—TEST CAMP—Dpt. Army, 121 N. Broad St., Phila., Pa., plans by W. Ellis Preston, 902 Jefferson St., Wilmington, tent camp (supporting facilities) $805,450.

▲ Del., Wilmington—HOUSING—Wilmington Del. Housing Auth., 2403 Thatcher St., plans by George E. Pope & Albert Kruse, 1108 Washington St., Eastlake Housing Development, Approx. $1,000,000; Southbridge Housing Development, Approx. $1,000,000. CD 3/24/50.

Ill., Chicago—WESTERN UNION—City, City Hall, Zone 2, modification Western Union Bldg., $850,000. Dpt. Subways & Superhighways, 20 N. Wacker Dr., Chicago, Zone 6, consult. engr.

Ind., Greensburg—SCHOOL—School Bd., school $600,000.

▲ La., Shreveport—SCHOOL—Caddo Parish School Bd., $20,000,000 bond election Oct. 30, school imprvs. CD 12/10/45.

▲† Me., Limestone—BUILDINGS, etc.—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., plans by Alonzo J. Harriman, Inc., 292 Court St., Auburn, addnl. bldgs., utilities, Several million dollars.

Mass., Brockton—HOUSING—Brooklyn Housing Auth., Samuel Sherman, chn., N. Main St., plans by Bourne Cornor-Nichols & Whiting, 177 State St., Boston, 50 veterans housing units. Proj. 200-2, $500,000. CD 5/31/50.

Mass., Scituate—SCHOOL—Town, School Dpt., plans by Perry, Shaw & Hepburn and Kehoe & Dean, 31 St. James Ave., Boston, 2 story, bsmnt. high school $980,000. CD 8/26/50.

▲ Mass., Springfield—GARAGE—City, Citizens' Comm. for Off Street Parking, Albert C. White, chn., 496 Bridge St., 4 story, parking garage, Main, Hillman, Dwight Sts. and Harrison Ave., $1,062,500; 4 story parking garage, New East Court and Market Sts., $637,500.

Mass., Worcester—HOUSING—City of Worcester Housing Auth., City Hall, plans by Arthur G. Manaselian & Assoc., 340 Main St., 88 housing units. $800,000. CD 6/30/49.

Mich., Crystal Falls—POWER PLANT—Wisconsin-Michigan Power Co., M. G. Gorrow, gen. mgr., 2nd Proj., hydro electric power plant, incl. dam, Michigamme Falls, $500,000. Mead & Hunt, 550 State St., Madison, Wis., consult. engrs.

† Neb., Sidney—STORAGE UTILITIES—U. S. Eng., 1709 Jackson St., Omaha, plans by Ogallala Eng. Co.,

(Continued on page 145)

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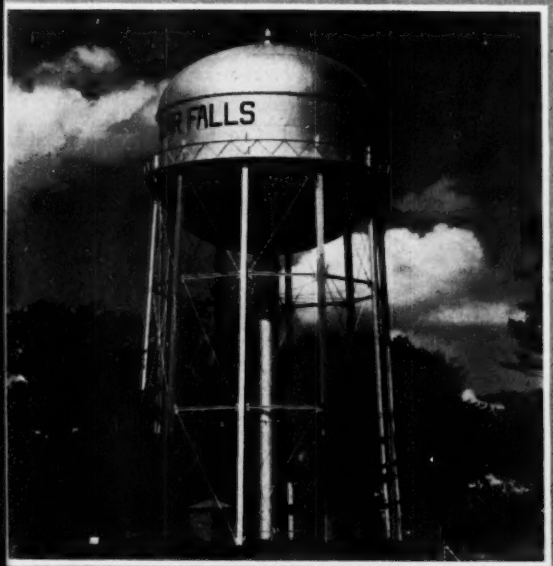

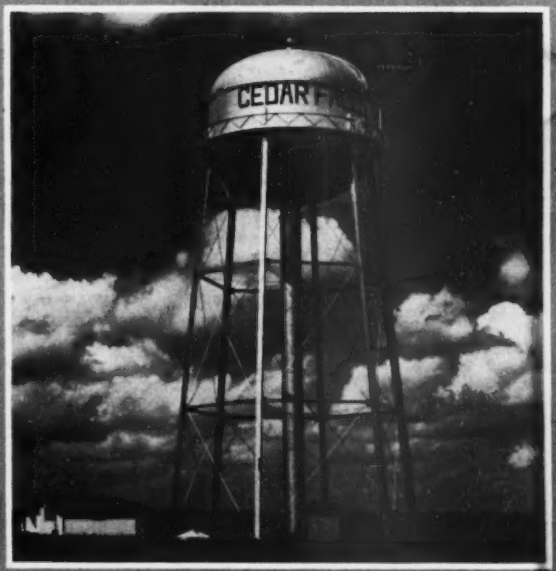

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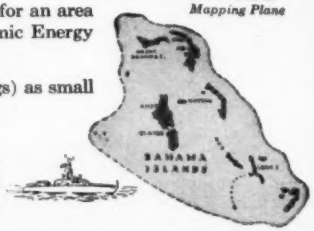

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(Continued from page 145)

Ogallala, consult. engr. and archt., storage utilities at Sioux Ordnance Depot. $809,100. CD 8/30.

▲† **N. H., Portsmouth**—STORAGE BATTERY—Pub. Wks. Office, 1st Naval Dist., 495 Summer St., Boston, Mass., plans by Hershey & Spaulding, consult. engrs. and archts., Dover Rd., Dover, storage battery bldg. $1,500,000.

▲† **N. J., Belle Mead**—STORAGE FACILITIES, etc.—U. S. Eng., Lafayette St., New York City, N. Y., storage facilities and utilities at Belle Mead General Depot. $16,800,000. Hart, Jerman & Assoc., 247 Park Ave., New York, 17, N. Y., engrs. and archts.

▲† **N. J., Fort Dix**—QUARTERMASTER—Dpt. Army, 121 N. Broad St., Phila., Pa., plans by Edwards & Green, 17-19 S. 5 St., Camden, quartermaster bldg., $1,600,000; plans by The Pepper Assocs., 225 S. 15 St., Phila., Pa., hospital extension, $600,000.

▲ **N. Y., Baldwin**—SCHOOLS—Union Free School Dist. 10, Baldwin High School, Baldwin, Hastings School, Hastings St., west of Milburn Ave. $700,000; Plaza School addn., Seaman Ave. and Rockville Dr., $675,000; Milburn School, Milburn Ave. and Garden Pl. $650,000.

† **N. Y., Fort Jay**—STORAGE FACILITIES, etc.—U. S. Eng., Lafayette St., New York, storage facilities and utilities, $867,000. Churchill-Fulmer Assoc., 19 W 44 St., New York Zone 18, engrs.-archts.

▲† **N. Y., Long Island City**—STORAGE, etc.—U. S. Eng., Lafayette St., New York, plans by Frederick G. Frost, 144 E. 30 St., New York, Zone 16, storage, housing, utilities at Signal Corp., Photographic Center. $1,034,000. Zimmermann & Luks, 500 5th Ave., New York, engrs.

▲ **N. Y., New York**—SCHOOL—Bd. Educ., 49 Flatbush Ave. exten., Brooklyn, Zone 1, plans by Chapman, Evans & Delehanty, 50 Broadway, Zone 4, 3 story P.S. 122, Kingsbridge Rd. and Heath Ave. Proj. E-133. $1,600,000.

▲† **N. Y., Schenectady**—STORAGE FACILITIES, etc.—U. S. Eng., Lafayette St., New York, storage facilities and utilities at Schenectady General Depot. $11,422,400. Raymond & Rado, 101 Park Ave., New York, Zone 17, engrs.-archts.

O., Arcanum—SCHOOL—Bd. Educ., Dr. Paul Lenhert, pres., Arcanum, $861,000 bond election Nov. 6, school for Southeastern Dist.

▲ **O., Berea**—SCHOOLS—Bd. Educ., Berea, $1,725,000 bond election Nov. 6, grade school, Middleburg Heights; Berea High School addn., Fairwood School addn.

▲ **O., Lima**—HIGH SCHOOL—Bd. Educ., Lima, $3,520,000 bond election Nov 6, Central High School. CD 7/21/44.

O., Lima—LIBRARY—Bd. Educ., Lima, $800,000 bond election Nov. 6, public library.

▲ **Pa., King of Prussia**—HIGH SCHOOL—Upper Merion Twp. School Dist., King of Prussia, high school. $1,000,000. Eastern Eng. Co., 836 Elm St., Reading, consult. engr.

▲† **Pa., New Cumberland**—WAREHOUSE—U. S. Eng., 24 St. and Maryland Ave., Phila., warehouse, $1,680,000. Kuljian & Co., 1200 N. Broad St., Phila., consult. engrs. CD 2/2.

▲ **Pa., Phila.**—INDUSTRIAL, etc.—Dpt. P. Welfare, City Hall Annex, plans by The Ballinger Co., 121 N. Broad St., industrial bldg. $500,000; admin. bldg. $1,000,000, both at House of Correction. CD 8/30.

▲† **Pa., Phila.**—RECEIVING BLDG., etc.—Dpt. Army, 121 N. Broad St., plans by Wallace & Warner, 1400 S. Penn Square, receiving bldg., fire house exceiving., sidewalks, $792,000; plans by George M. Ewing, Western Savings Fund Bldg., addnl. facilities and fuel storage facilities $1,933,250, both at Frankford Arsenal.

▲† **R. I., Davisville**—BARRACKS, etc.—Pub. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass., barracks, mess hall, galley, storage facilities at Naval Advance Base, $7,500,000. Charles A. Maguire & Assoc., 1015 Turks Head Bldg., Providence, consult. engrs.

▲† **Tenn., Memphis**—WAREHOUSES—U. S. Eng., Box 97, plans by Furbinger & Ehrman, U. P. Bank Bldg., seven 200x1,000 ft. warehouses, 1,400,000 sq. ft. storage space. $11,705,000.

Tex., Alice—HIGH SCHOOL—Alice Independent School Dist., Alice, plans by Addis E. Noonan Assoc., American Hospital & Life Bldg., San Antonio, stucco, brick Junior High School, concrete pier and beam fdn. $500,000. CD 9/5.

Tex., Beeville—HIGH SCHOOL, etc.—Beeville Independent School Dist., Beeville, high school, $500,000; stadium, $150,000; auditorium, $300,000. CD 1/29.

▲ **Tex., Dallas**—SCHOOLS—Pleasant Grove Independent School Dist., Pleasant Grove, via Dallas, defeated bonds July 31, high school, $650,000; elementary school, $400,000; grade school, $425,000. CD 7/26.

▲ † **Wyo., Cheyenne**—BARRACKS—U. S. Eng. 1706 Jackson St., Omaha, Neb., plans by J. T. Banner & Assoc., consult. engrs. and archts. 4 Converse Bldg., 817 S. 11 St., Laramie, 1 and 2 story, bsmnt., brick, steel barracks at Francis E. Warren Air Force Base, $3,900,000. CD 7/17.

COMMERCIAL BUILDINGS

▲ **Calif., Los Angeles**—CAMPUS—Chapman College, 766 N. Vermont St., campus at Mulholland Dr. and Laurel Canyon Blvd., $6,500,000.

Calif., Oakland—CHURCH—Roman Catholic Church, San Francisco Archdiocese, 1100 Franklin St., San Fran-

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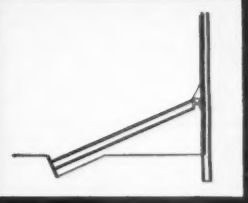

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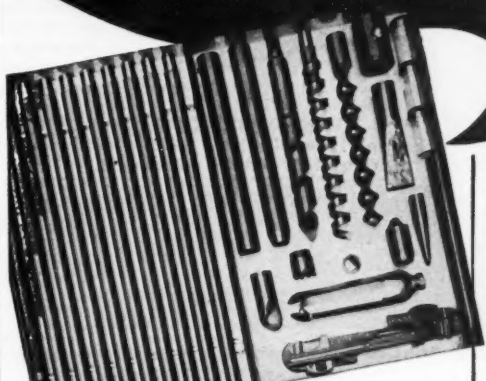

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cisco, plans by Paul A. Ryan & John Michael Lee, 1095 Market St., San Francisco, church, for St. Jariath's Parish, Fruitvale and Pleasant Aves. $600,000.

Mass., Fall River—HOSPITAL—St. Anne's Hospital, 795 Middle St., plans by Tallman, LaBrode & Roundsville, 222 Union St., New Bedford, 3 story, bsmnt., 44x222 ft. hospital addn. $500,000. CD 2/16/48.

▲ **Mass., Somerville**—HOSPITAL—Central Hospital, 26 Central St., plans by Irving Salsburg, 66 Egmont St., Brookline, 4 story, bsmnt., brick, steel, concrete, 100,000 sq. ft. hospital addn., alterations, Central St., $1,000,000.

▲ **Neb., Omaha**—SHOPPING CENTER—Central States Theatre Corp., Paramount bldg., Des Moines, Ia., plans by George Becker, 1011 Currie Ave., Minneapolis, Minn. shopping center 72 and Dodge Sts., 1 mi. west of city limits. $2,000,000.

▲ **N. J., Trenton**—HOUSING—Arbor Haven Corp., c/o Edwards & Green, archts., 17-19 S. 5 St., Camden, housing, Route 33, $10,000,000.

▲ **N. J., Trenton**—OFFICE—Louis H. Cahan & Co., Inc., Market St., National Bank Bldg., Phila., Pa., 30 story office, 138-140 W. State St., opposite New Jersey State Capitol, $6,000,000.

▲ **N. Y., Brooklyn**—APARTMENT—Murray Lipton & Morton Goldberg, c/o Kavy & Kavovitt, archts., 44 Court St., Zone 2, 6 story apartment, 68 St. and Shore Rd. $1,000,000.

N. Y., Forest Hills—APARTMENT—D. Peters, c/o S. J. Kessler & Sons, archts., 118 E. 28 St., New York, Zone 16, 6 story apartment, 110 St. and 71 Ave. $384,247.

N. Y., Sunnyside—APARTMENT—Sunwood Building Corp., c/o Julius Fishkind, archt., 161-19 Jamaica Ave., Jamaica, 6 story apartment, 40 St., south of 47 Ave. $435,000.

▲ **O., Toledo**—RESIDENTIAL, etc.—Young Womens Christian Assn., 13 and Jefferson Sts., plans by Bellman, Gillette & Richards, 518 Jefferson St., residential and activities wing for Y.W.C.A. $1,300,000.

Okla., Oklahoma City—AUDITORIUM—Bishop McGuiness, 12 and Hudson Sts., plans by Valberg, Palmer & Valberg, 1323 N. Robinson St., auditorium at Central Catholic High School, 50 and Francis Sts. $400,000.

Pa., McKeesport—ARMORY—Paulene Auberle Memorial Corp., Dithridge St., Pittsburgh, plans by A. Pyzdrowski, 3410 Fleetwood St., Pittsburgh, 1 story, approx. 200x200 ft., brick, tile, steel armory. $850,000.

▲ **Pa., Pittsburgh**—DEPARTMENT STORE, etc.—U. S. Steel Co., 431 5 Ave., 15 story department store and office remodeling and interior alterations from office bldg. to store. $1,000,000. Kaufmann Dpt. Store, lease.

▲ **Tex., Bellaire**—RESIDENCES—Boyker & Vest, Bellaire, addnl. residential constr. in exten. of Sect. 3, of Post Oak Terrace, frame houses, concrete slab fdn., $600,000; Sect. 4 of Post Oak Terrace, cedar shake, brick, stone type, concrete slab fdn. $700,000.

Tex., Midland—DWELLINGS—Raymond Thomason, Sr., Abilene, 70 dwellings. $560,000.

▲ **Tex., Port Isabel**—DUPLEXES—Killeen Housing Corp., 1st Natl. Bank Bldg., Killeen, plans by Milam & Roper, 1508 Buckner St., Dallas, 80 frame, duplexes, concrete slab fdn., in Wander Park addn. $1,000,000.

▲ **Tex., Sherman**—DWELLINGS—Southwestern Development Corp., 206 S. Erway St., Dallas, 300 dwellings, $1,900,000.

Wash., Longview—HOUSING—Myers & Major, Vancouver, plans by K. C. Woollen, Longview, 100 housing unit. $700,000. CD 7/26.

Alaska, Anchorage—HOTEL—Westward Hotel Corp., Anchorage, 1 and 2 story part bsmnt., frame hotel. $520,000.

Ont., Toronto—SHOPPING CENTER—Boem Constr. Co., 48 Murray Rd., plans by Leo E. Venchiarutti, 1170 Bay St., 56-units, 63,500 sq. ft. store space on 237,000 sq. ft. lot SHOPPING CENTER at Warden and Lawrence Aves., parking facilities for 252 cars, bank, theatre, service station retail stores. $500,000.

▲ **Que., Mount Royal (Postal Dist. Montreal)**—HOUSING—Home Owners Corp., 1425 Graham Blvd., 500-unit housing, near Decarie Blvd., $4,500,000.

INDUSTRIAL BUILDINGS

▲ **Calif., Palmdale**—FACTORY—Lockheed Aircraft Corp., 2555 N. Hollywood Way, Burbank, jet aircraft assembly plant for Air Force at Palmdale Airport. $12,615,000.

Calif., Van Nuys—FACTORY, etc.—Schwien Eng. Co., 5736 Washington Blvd., plans by Adrian Wilson, 816 W. 5 St., Los Angeles, Calif., concrete factory and office, $400,000.

▲ **Fla., Madison**—POWER PLANT—Florida Power Corp., 101 S. 5 St., St. Petersburg, power plant on Suwannee River, near here. $6,000,000.

▲ **Ill., Chicago**—PLANT—Allied Chemical & Dye Corp., Barrett Div., 40 Rector St., New York, N. Y., chemicals mfg. works, $30,000,000. CD 1/8.

▲ **Ill., Chicago**—PIPE MILL—Republic Steel Corp., Republic Bldg., Cleveland, O., 1 story, steel pipe mill, $22,000,000.

▲ **Nev., Henderson**—PLANT—Western Electro Chemical Co., Henderson, industrial plant. $10,000,000.

▲ **Pa., Phila.**—STATION IMPRVS.—Pennsylvania R. R., J. L. Gressitt, ch. engr., Broad St. Station Bldg., 1617 Pennsylvania Blvd., Phila., Broad St. Station imprvs. $19,500,000.

Tex., Clarkwood—LABORATORY—Celenese Corp. of America, Clarkwood, plans by Smyth & Smyth, 1806 S. Almeda St., Corpus Christi and Walter Wilde, Gulf Security Bldg., Corpus Christi, 20,000 sq. ft. laboratory-office. $400,000. R. C. Rippstein, Transit Tower Bldg., San Antonio, consult. engr. CD 7/30.

Wash., Seattle—BUILDING—Boeing Airplane Co., 7755 E. Marginal Way, 1 story, 200x300 ft. steel, concrete jig erection building, $800,000.

UNCLASSIFIED

▲ **Calif., Los Angeles**—ELECTRICAL DISTRIBUTION SYSTEMS—Southern California Edison Co., 601 W. 5 St., Los Angeles, interconnection of electrical distr. systems $2,000,000.

Ind., Indianapolis—FARMERS BLDG., etc.—State Fair Bd., Fairgrounds, Indianapolis, farmers bldg. incl. combination lounge, restaurant, and 1,000 seat auditorium. $750,000; sheep barn addn., $200,000.

▲ **Mo., Kansas City**—STADIUM—City, stadium, $2,000,000. J. C. Maring, city engr. CD 11/10/47.

▲ **O., Springfield**—COLISEUM—Comrs. Clark Co., Court House, bond election Nov. 6, coliseum at fairgrounds, $2,500,000. CD 11/16/50.

Oregon—RURAL DISTRIBUTION LINES—Eastern Oregon Electric Co-operative, Pendleton, 85 mi. rural distr. and sys. imprvs., Weston Co. $330,000. CD 9/14/48.

▲ **Texas and Oklahoma**—PIPE LINE—Continental Oil Co., Ponca City, Okla., 100 mi. 8 in. oil pipe line from Rincon Fields to Port Isabel, Tex., $2,000,000; 225 mi. 12 in. oil pipe line from Wichita Falls, Tex., to Ponca City, Okla., $5,900,000. L. D. Skinner, c/o owner, engr.

Tex., Fredericksburg—SWIMMING POOL, etc.—City, Joe Molberg, mayor (2nd), rein.-con. swimming pool and bathhouse, $500,000.

Virginia—RURAL DISTRIBUTION LINES—Community Electric Co-operative, Suffolk, 220 mi. rural distr. lines and sys. imprvs., Nansemond Co. $800,000. CD 2/3/49.

▲ **British Columbia**—POWER TRANSMISSION LINE—British Columbia Power Comn., Victoria, B. C., power transmission line, Clowhom Falls to Sechelt, $250,000; power transmission line Campbell River to Duncan Bay, $970,000.

Que., Montreal—TUNNEL—Municipality, 1,100 ft. tunnel 75 ft. wide under Canadian Pacific R. R. tracks, Christopher Colomb St., $600,000. H. Gibeau, city engr.

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3. Call in your local scrap dealer to help you work out a practical scrapping program. Non-ferrous scrap needed, too!
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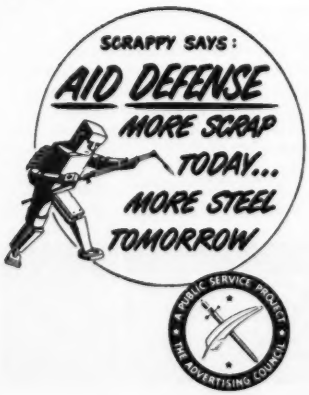

FACTS YOU SHOULD KNOW ABOUT STEEL PRODUCTION

Steel production	1950	97,800,000 net tons
Estimated capacity	1952	119,500,000 net tons
Purchased scrap used*	1950	29,500,000 gross tons
Estimated purchased scrap requirement*	1952	36,200,000 gross tons

*All consumers

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CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
October 1, Connecticut
STREETS AND ROADS
October 1, Connecticut October 2, Massachusetts

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Guy J. Lorusso Corp., 346 Main St., Sharon, Mass. LB $100,017. Contr. 371, rectangular enclosing Beaver Brook, Waltham, BOSTON, MASS. State, Metropolitan Dist. Comn., Parks Div., 20 Somerset St., Boston, Mass. Bids Sept. 13.

BUILDINGS

LOW BIDS AND CONTRACTS

Town, School Dpt., Barre, Mass., rejected bids SCHOOL, Ruggles Lane, BARRE, MASS. LB $449,787. Will re-advertise. CD 8/24, under LB.

Morton C. Tuttle Co., 31 St. James Ave., Boston, Mass. CA $175,000. fruit ripening PLANT incl. brick office and salesroom, DEDHAM, MASS. Mello Ripe Fruit Co., c/o United Fruit Co., 80 Federal St., Boston, Mass.

Sullivan-Foster, Inc., 43 Williams St., New Bedford, Mass. LB $376,204. Oxford SCHOOL addn., FAIRHAVEN, MASS. Town, Supt. Schools, Fairhaven, Mass. Tallman-LaBrode & Rounseville, 222 Union St., New Bedford, Mass., archts. Bids Sept. 12. CD 8/24.

Morton C. Tuttle Co., 31 St. James Ave., Boston, Mass. CA $180,000. PLANT, MEDFORD, MASS. Mello Ripe Fruit Co., c/o United Fruit Co., 80 Federal St., Boston, Mass.

Morton C. Tuttle Co., 31 St. James Ave., Boston, Mass. CA $175,000. fruit ripening PLANT incl. branch office and sales room, 287 Newtonville Ave. NEWTON, MASS. Mello Ripe Fruit Co., c/o United Fruit Co., 80 Federal St., Boston, Mass.

Beacon Constr. Co., 102 Hano St., Allston, Mass. LB $440,810. INFIRMARY for Girls, Myles Standish State School, TAUNTON, MASS. State, Dpt. Mental Health, 15 Ashburton St., Boston, Mass. Bids Sept. 12. CD 8/30.

Park Constr. Co., 40 Court St., Boston, Mass. LB $408,000, est. $300,000. James Humphrey SCHOOL addn., WEYMOUTH, MASS. Town, Supt. Schools, 89 Middle St., Weymouth, Mass. Bids Sept. 14. CD 9/4.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
October 2, Maryland October 3, Delaware, New York
October 9, New Jersey

N. Y., Idlewild—LIGHTING—B.A. 10/1—At office Chief Engineer of The Port of New York Auth., 111 8th Ave., New York, Zone 11, furnishing, installing flashing amber lights on barricades on Van Wyck Approach Rd. at New York International Airport, Contr. NYA 130.002. Plans deposit $10. CD 4/27/44.

N. J., New Brunswick—B.A. 10/2—Bd. Comrs., 78 Bayard St., enlargement, imprvs. water treatment plant Comstock and Michel Sts.

DELAWARE—B.A. 10/3—State Hy. Dpt., Dover
New Castle Co.—wid'n., resurf. 1.527 mi. New Castle Ave. and Ridge Rd., Contr. E-1168. Plans deposit $5. R. A. Haber, ch. engr., adv ENR. 9/27 CD 3/22/46.

New York—B.A. 10/3—At office Henry A. Cohen, Dir., Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, constructing new concrete apron Gates 3 and 4 Barge Canal Harbor Dam; Rochester City, Contr. M-51-5. Monroe Co. $45,940. Plans deposit $10.

BIDS ASKED—BUILDINGS

† **N. J., Fort Dix**—OFFICERS BLDG.—B.A. 10/1—Dpt. Army, Fort Dix main Officers Bldg. 162 alterations, addns., approx. $50,000.

N. Y., Rockaway—CORPORATION YARD and GARAGE—B.A. 10/3—President Queens Boro, 120-55 Queens Blvd., Kew Gardens, Zone 15, general constr.; plumbing; heating and ventilating; electrical work and lighting fixtures for construction new Rockaway Corp. Yard and Garage, etc. at Beach 75 St. and Amstel Blvd. Plans deposit $25. Extended date. CD 9/7.

Pa., Grove City—PLANT—B.A. 10/3—George J. Howe Co., Grove City, 2 story, 65x85 ft., concrete, block food processing plant addn. Holmes Crosby, P.O. Box 603, Oil City, archt.

▲ **N. Y., Manhasset**—HOSPITAL—B.A. 10/4—North Shore Community Hospital, c/o Isidore Rosenfield, archt., 23 W. 47 St., New York Zone 19, 105-bed hospital, Valley Rd. $5,000,000. CD 8/9.

▲ **N. Y., Brooklyn**—SCHOOL—B.A. 10/16—Bd. Educ., 49 Flatbush Ave. exten. Zone 1, general constr.; plumbing and drainage; heating and ventilating; electrical and lighting fixtures for P.S. 139 addn., Rugby Rd., north of Cortelyou Rd., $1,215,700. Plans deposit $16; general constr., $5 heating and ventilating, $6 each others. CD 1/17/50.

Del., Wilmington—WAREHOUSE—Bids Asked—Stanhope & Manning, archts., 902 Orange St., Wilmington, Del., warehouse, for Speakman Co., 30 and Spruce Sts., $150,000. CD 3/30.

Pa., Sellersville—FACTORY—Bids Asked—American Machines & Metals, Inc., Sellersville, factory addn. $82,000. Charles M. Talley, 314 W. Broad St., Telford, Pa., archt.

SOON LETS CONTRACT—BUILDINGS

Pa., Bridgeport—WAREHOUSE—Abraham Levy, archt., 1411 Walnut St., Phila., soon lets contract warehouse addns., alterations, for Schuylkill Valley Grocery Co., Inc., Bridgeport, Pa. Approx. $82,000.

Pa., Pittsburgh—CHURCH—St. Josephs Roman Catholic Congregation, Mt. Oliver, soon lets contract, 1 story, 51x128 ft., 15x85 ft., brick, tile church, Mt. Oliver $525,000. Marlier & Johnstone, Empire bldg., archts. CD 8/2.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Spearin, Preston & Burrows, Inc.,** 50 Church St., New York 7, N. Y., CA. $1,229,025, storm trunk sewers, appurtenances Springfield Blvd., NEW YORK, President Queens Boro, Boro Hall, 120-55 Queens Blvd., Kew Gardens, N. Y. Bids July 27. CD 8/1, under LB.

John R. Philip, Inc., 142 Brook St., Scarsdale, N. Y. LB. $198,970, Contr. 327, furnishing, del. installing, testing, heating, ventilating and appurtenant equip. for the Rondout, West Branch and Kensico South effluent chambers, heating equip. with appurtenances for drainage chamber of Shaft 13 the coagulating plant at Shafts 17 and the Kensico comfort station, misc. constr. locations of proposed work in Town of Wawarsing, Ulster Co., Carmel, Putnam Co., Bedford, North Castle and Mt. Pleasant, Warren Co., NEW YORK, N. Y. Bd. Water Supply, 120 Wall St., New York 15, N. Y. Bids Sept. 11. CD 8/13.

Hendrickson Bros., Inc., 63 N. Central Ave, Valley Stream, N. Y., LB. $587,000. Sewer, Cont. 1002-2T-10, Valley Stream to Malverne, MINEOLA, N. Y. Bd. Supervs. Nassau Co., Old Court House, Franklin Ave., Mineola, N. Y. Bids Sept. 11. CD 8/30.

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
A. B. Cole, Meshoppen, Pa. CA. $829,357. Construct 9,601 ft. divided hy. crushed aggregate base with bit. surf. and I-beam Bridge, T. R. 11, Lackawanna and Wyoming Counties. Bids Sept. 7, awarded Sept. 17. CD 8/22.

General State Auth., 18 and Herr Sts., Harrisburg, Pa., terminated contract as non-essential project to be revived when material available, swimming pool for Scotland School for Veterans' Children, SCOTLAND, PA. LB. $184,020. CD 4/16, under LB.

O. H. Martin, 18 1st St., Sharpsburg, Pa., LB. $436,981. Sewage disposal plant, Penn Twp., WILKINSBURG, PA. Comrs. Penn Twp., 12245 Frankstown Rd., Pittsburgh, Pa. CD 4/27.

† **Segreti Constr. Co.,** 6040 River Rd. N. W., Wash., D. C. LB $132,160, readiness bldg., ANDREWS AIR FORCE BASE, MD. U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C. Bids Sept. 11. CD 8/21.

Carson & Gruman, 33 and K Sts. N. W., Wash., D. C., LB $89,158, ground imprvs. at 14 public schools WASH., D. C. Dist. Columbia Govt., District Bldg., Wash., D. C. CD 9/4.

▲† **Charles H. Thompkins Co.,** 907 16 St. N. W., Wash., D. C., CA $4,583,783, rein.-con. pipe tunnel for Capitol Power Plant to Senate Office Bldg., WASH., D. C. Office of the Architects of the Capitol, U. S. Capitol, Wash., D. C. Bids Aug. 14, awarded Sept. 12. CD 8/17, under LB.

DELAWARE—State Hy. Dpt., Dover, Del.
Pleasanton & Edgell, Dover, Del., LB, $72,431, stabilized and surf. tr. road 4.461 mi. Greenwood to Andrewville, Contr. 1086, Kent and Sussex Counties.

George & Lynch, Inc., Delaware Trust Bldg., Wilmington, Del., LB $98,754, 22 ft. hot mix asph. resurf. 3.585 mi. 9/10 mi. south Woodside to Camden, Contr. 1048, Kent Co. Bids Sept. 12. CD 8/24.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Park Drive Rancher Homes,** c/o Schulman & Soloway, archts., 100-15 Queens Blvd., Forest Hills, N. Y. Owner Builds. Approx. $1,000,000. 60 one family HOUSES on tract, Horace Harding Blvd. and 208 St., BAYSIDE, N. Y.

Grace Harbor Estates, c/o Simeon Heller, archt., 38-11 Union St., Flushing, N. Y., Owner Builds. Approx. $400,000. One family HOUSES on tract bounded by Hicks Lane, Remsen and East Shore Rds., GREAT NECK, N. Y.

▲ **Plainview Ranch Village Homes,** c/o W. T. Schaardt & Albert Loeffler, archts., Sunrise Hy., Bellmore, N. Y. Owner Builds. $2,000,000. 200 one family HOUSES on 40 acre tract, Old Country Rd., PLAINVIEW, N. Y.

Syosset Manor Homes, c/o John W. Burton, archt., 163-18 Jamaica Ave., Jamaica, N. Y., Owner Builds. Approx. $800,000. 40 one family HOUSES, on tract Jackson Ave. and Hillside Lane, SYOSSET, N. Y.

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▲ **Beech Hill Builders, Inc.,** c/o Ralph H. Segal, archt., 36 E. 40 St. New York 17, N. Y. Owner Builds. Approx. $3,000,000. Ranch HOME colony on 22 acres tract, Stoneleigh Rd. and Kings Cross, YONKERS, N. Y.

▲ **Eagle Constr. Co.,** c/o Erwin Gerber, archt., 1180 Raymond Blvd., Newark, N. J., Owner Builds, $1,000,000 two story garden APARTMENT PROJECT to be called Belle-View Gardens, BELLEVILLE, N. J.

† **Arthur Venneri Co.,** 300 North Ave., East Westfield, N. J., LB. $349,300, automotive maintenance SHOP, METUCHEN, N. J. Dpt. Army, 121 N. Broad St., Phila., Pa. Bids Sept. 6. CD 8/14.

Radice Constr. Co., 420 Lexington Ave., New York, N. Y. CA. $680,000, two 5 story APARTMENTS, Boulevard East and 62 St., WEST NEW YORK, N. J. A. Kaplen & Sons, 80 Huguenot Ave., Englewood, N. J. Erwin Gerber, 1180 Raymond Blvd., Newark, N. J., archt.

▲ **Highview Homes, Inc.,** c/o Frederic Doriot, archt., S-111 Paramus Rd., Paramus, N. J. Owner Builds, $2,500,000. 230 one-family HOUSES on 100-acre site, near Route 6, WEST PATERSON, N. J.

Alger-Rau, Inc., 17024 Miles Ave., Cleveland, O., CA. Approx. $793,348, 2 story, brick, block, Junior-Senior HIGH SCHOOL, CAMBRIDGE SPRINGS, PA. School Dist. Area VI, R. D. 1, Cambridge Springs, Pa. Bids Aug. 16. CD 8/23, under LB.

Upton Lang Co., Commerce Bldg., Erie, Pa., LB. $308,736. 3 story, bsmnt., brick, steel County Tuberculosis HOSPITAL, ERIE, PA. Bd. Comrs., Erie Co., Court House, Erie, Pa. Bids Sept. 11. CD 8/24.

Contrucci Bros., 243 Olive St., Indiana, Pa., LB. $200,000. 1 story, 175x275 ft., concrete block textile FACTORY, near INDIANA, PA. Indiana Chamber of Commerce, Indiana, Pa. J. Carlton Winslow, Weamer Bldg., Indiana, Pa., archt.

F. J. Busse Co., 1579 Noblestown Rd., Pittsburgh, Pa., CA. Approx. $360,000. 2 story, 56x185 ft., brick, tile, Parochial HIGH SCHOOL, PITTSBURGH, PA. Elizabeth Seton High School, Pioneer Ave., Pittsburgh, Pa. CD 2/24/50.

Miller, Dumbaugh & Cypher, 331 S. Washington St., Butler, Pa., CA. Approx. $210,000. 1 story, 28x100 ft., brick, steel fire brick MFG. BLDG., ZELIONOPLE, PA. Johns Mansville Products Co., Zelionople, Pa. CD 8/1, under CA.

Ernest Di Sabatino & Sons, Inc., 2601 W. 4 St., Wilmington Del., LB, $351,000, two SCHOOL addns., NEW CASTLE, DEL. New Castle Special School Dist., New Castle, Del. CD 7/16.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES

October 3, Louisiana
October 5, Alabama

STREETS AND ROADS

October 5, Alabama

BIDS ASKED—BUILDINGS

Fla. Jacksonville—SCHOOL—B.A. 10/3—Duval Co. Bd. P. Instruction, 605 Ocean St., Ocean Way School 62, Florida Ave. and N. Miami St. $350,000. Plans deposit $25. CD 10/10/49.

† **Va., Portsmouth**—SHOP—B.A. 10/9—Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk Zone 11, repairs to Shop Bldg. No. 163 at Norfolk Naval Shipyard, NOY 28495, Spec. 30130. Plans deposit $10.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲† **Tidewater Constr. Co.,** 538 Front St., Norfolk, Va., LB. $1,774,000. addns. to aviation gasoline distr. sys., Craney Island Fuel Facility, NORFOLK, VA. P. Wks. Office, Headquarters, Fifth Naval Dist., Norfolk, Va. Bids Sept. 11.

Thompson-Arthur Constr. Co., Greensboro, N. C., LB. $176,500 WW and sanitary sewer imprvs., HIGH POINT, N. C. City, High Point, N. C. Bids Sept. 13. CD 9/6.

† **T. H. Pearce & Co.,** Edgewood Circle, Columbus, Ga., CA, $68,771, reservoir operations bldg. and utilities at Allatoona Dam, Bartow Co., CIVENG 01-076-52-1. GEORGIA. U. S. Eng., P.O. Box 889, Savannah, Ga. Bids July 24. CD 7/12.

† **Atlantic, Gulf & Pacific Co.,** 15 Park Row, New York, N. Y. CA. $310,598, cutting new Savannah River channel in vicinity of Seaboard Bridge, GEORGIA. U. S. Eng., P.O. Box 889, Savannah, Ga. Bids Sept. 10. CD 8/29.

† **Erikson's,** 1711 Price St., Savannah, Ga., CA $125,763 steam distr. sys. exten., near Hinesville, CAMP STEWART, GA. U. S. Eng., P.O. Box 8899, Savannah, Ga. CD 8/13, under Public Buildings.

† **The Rood Constr. Co.,** Coral Gables, Fla., LB $193,480, welfare bldg. at Patrick Air Force Base, near COCOA, FLA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Sept. 14. CD 8/30.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge.

W. T. Burton, Sulphur, La. LB $154,222. clam shell, reef shell placed and spread 8.46 mi. Westlake-Moss Bluff Hy., State Rte. 378 and 2207, S. P. 810-12-07, Calcasieu Parish. Bids Sept. 5. CD 8/24.

† **TENNESSEE**—Bureau P. Rds., Dpt. Commerce, Gatlinburg,

Baskerville Builders, 1650 Island Home Ave., S. E., Knoxville, Tenn., CA. $157,760, construct bridge over the west prong of Little Pigeon River near Gatlinburg, Proj. 154S, Foothills Parkway, Sevier Co. Bids Aug. 21. CD 7/23.

BUILDINGS
LOW BIDS AND CONTRACTS

▲† **Grannis, Sloane, Thompson & Street,** Pineville Rd., Charlotte, N. C., CA. $2,643,000. WAREHOUSE at Marine Corps Forwarding Depot, PORTSMOUTH, VA. P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Aug. 14. CD 8/22, under LB.

A. H. Guion & Co., Wilkinson Blvd., Charlotte, N. C., LB. $477,000. HOSPITAL, HENDERSONVILLE, N. C. Margaret Pardue Hospital, Hendersonville, N. C. Bids Sept. 14. CD 8/24.

Barge-Thompson Co., 136 Ellis St. N. E., Atlanta, Ga., Approx. $300,000, CLASSROOM BLDG., ATLANTA, GA. Atlanta University, 223 Chestnut St. S. W., Atlanta, Ga.

▲ **Stone & Webster Eng. Corp.,** 49 Federal St., Boston, Mass., CA. Approx. $1,000,000, Riverside Electric Power PLANT addn., SAVANNAH, GA. Savannah Electric & Power Co., 27 W. Bay St., Savannah, Ga.

Brekap Corp., 823 S. Lake Dr., Hollywood, Fla., Owner Builds, $300,000, several RESIDENTIAL DEVELOPMENTS, HOLLYWOOD, FLA.

Acme Constr. Co., 2299 N.W. 25 Ave., Miami, Fla., CA $100,000, WAREHOUSE, MIAMI, FLA. Sun Deck Hoiding Co., c/o contractor.

Stewart Page Co., 6701 S.W. 26 Terrace, Miami, Fla., Owner Builds, $300,000, several RESIDENTIAL DEVELOPMENTS, MIAMI, FLA.

Paul Silverthorne, 219 N.E. 1 St., Miami, Fla., CA Approx. $300,000 APARTMENT DEVELOPMENT, MIAMI, FLA. J. E. Jarkesy c/o contractor.

Daniel Constr. Co. of Alabama, Inc., 822 7 Ave. S., Birmingham, Ala., CA, $120,000, mfg. PLANT addn., DECATUR, ALA. Wolverine Tube Division, c/o contractor.

MIDDLE WEST

BIDS ASKED—BUILDINGS

Ind., Columbia City—SCHOOL—B.A. 10/8—Bd. School Trustees, A. G. Kerr, supt., Columbia City, Mary Raber School. Plans deposit $25. Edward D. James, 122 E. Michigan St., Indianapolis, archt.

O., Youngstown—BOILER HOUSE, etc.—B.A. 10/8—Comrs Mahoning Co. Court House, boiler house and heating plant addn. and alterations at Mahoning County Tuberculosis Sanitorium, Kirk Rd. Plans deposit $10. Arsene Rousseau, 213 Mahoning Bank Bldg., archt.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

OHIO—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15,

A. W. Burns & Son Constr. Co., 424 Woodland Ave. Columbus, O., CA. $59,554, est. $54,400. Type T-35, resurf. C. R. 9, Franklin Co.

Frankz Bros., P. O. Box 27, Sidney, O., CA. $65,871, est. $74,500, Type T-32 on B-20 and concrete structure, S.R. 190, Putnam Co.

John R. Jurgensen, Box 254, Newtown, O., CA. $93,082, est. $88,700, Type T-35 resurf. U. S. R. 22, Warren Co.

Braden & Walters Constr. Co., 413 Peoples Bank Bldg., Marietta, O., CA. $258,654, est. $300,750, Type T-32 on B-117 grading, paving, S. R. 104, Pike Co.

James T. Shidecker, Sunbury, O., CA. $139,764. est. $142,000, Type T-35 and T-35 on B-70 (pts 1 and 2) resurf. U. S. R. 42, Morrow Co.

The Clinton Constr. Co., Wilmington, O., CA. $63,890, est. $61,000, right-of-way fence, U. S. R. 22, Clinton and Warren Counties. Grand total $680,815. Bids Sept. 11. CD 8/30.

OHIO—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15, rejected bids Sept. 11, Type T-70 and B-50, grading, paving, widen, resurf. C. R. Nos. 178 and 189, Lucas Co. $252,450, Type T-35, resurf. U. S. R. 21, Stark Co., $67,600, received no bids Sept. 11, Type T-71, grading, paving, U. S. R. 24, Henry Co., drainage U. S. R. 6 Erie Co. CD 8/30.

Burch Constr. Co., Neff Rd., Dayton, O., LB. $173,475, est. $141,928. Contr. to install 25,00. ft. sewer lines in Area 6, LB $88,071, est. $67,970, Contr. 10, install 11,630 ft. sewer trunk line, in Beavercreek Sanitary Sewer Dist., DAYTON, O. Comrs. Montgomery Co. Court House, Dayton, O. Bids Sept. 13. CD 8/10.

White Constr. Co., 1831 W. Columbia St., Chicago, 26, Ill., LB, $412,997, boulevard resurfacing on Sheridan Road from Broadway to Howard Ave., CHICAGO, ILL. Chicago Park Dist., 425 14 St., Chicago, 5, Ill. CD 6/11/45, under Unclassified.

City, City Hall, Chicago, 2, Ill., rejected bids Aug. 21 paving W. 35 St. from Ashland Ave. to Halsted St., LB, $137,719; paving 35 St. from State St. to Halsted St., LB $169,849; paving W. 35 St. from California to Ashland Ave., LB $223,483, CHICAGO, ILL. Will re-advertise in 1952. CD 8/17.

Standard Paving Co., 30 N. LaSalle St., Chicago 2, Ill., LB. $117,368. paving Schaumberg Rd. from Sutton Rd. to Chicago-Elgin Rd., Bartlett, CHICAGO, ILL. Cook Co. County Bldg., Chicago 2, Ill. CD 9/6.

▲ **James McHugh & Sons,** 6449 S. Park Ave., Chicago, Ill., CA, $1,206,214, trunk and lateral sewers,

PEKIN, ILL. City, City Hall, Pekin, Ill. Bids Aug. 6. CD 8/20, under LB.

Tunnicliff Contr. Co., 105 Filmore St., Davenport, Ia., LB, $450,000, water mains and sanitary sewer lines in arsenal bldgs., ROCK ISLAND, ILL. Dpt. Army, Rock Island Arsenal, Rock Island, Ill. CD 7/3.

MICHIGAN—State Hy. Comn., 213 S. Capitol Ave., Lansing.

Bacco Constr. Co., Iron Mountain, Mich. CA $653,455, est. $630,000, b. conc. 7.557 mi. relocation M-35, F 55-33, C4 (F 126 10), F 55-53, C 5 (F 126 12), Menominee Co. CD 9/7, under LB.

MICHIGAN—State Hy. Dpt., 222 Townsend St., Lansing, Zone 13.

Wright Constr. Co., Williamston, Mich. CA, $414,843 b. conc. pavement, wid'n. 3.483 mi. M 33-9, C19, M 33-14, C15, M 33-24, C15 33-24, C-16, F 33-68, C1 (F 45 5), Ingham Co. Bids Sept. 12. CD 9/7.

▲ **Wayne Co.**, Geo A. Dingman, comr., Detroit, Mich. rejected bids Aug. 30. exten. Middle Rouge Parkway Sewer, Dearborn, Canton, Nankin, Plymouth Northville, Redford, Garden City and Livonia, DETROIT, MICH. LB $3,034,426. Est. $4,000,000. CD 8/21.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Burger Iron Co.**, 1324 Firestone Parkway, Akron, O. CA., structural steel;

A. M. Higley, 2036 E. 22 St., Cleveland, O., CA. general constr.;

Spohn Heating & Ventilating Co., 1775 E. 45 St., Cleveland, O., CA. plumbing, heating, sewer;

Northwestern Electric Co., 323 State St. Erie, Pa., CA. electrical work for 104,000 sq. ft., brick, steel, glass extending from brick sill to roof, FACTORY, main plant 282x362 ft., and boiler plant will have interchangeable gas and oil-fired boilers, on 32 acre site, Old Mansfield Rd., 2 mi. west of WOOSTER, O. Borg-Warner Corp., 310 S. Michigan St., Chicago 4, Ill. Total est. $3,000,000. McGeorge, Hargett & Assoc., 7015 Euclid Ave., Cleveland, archts.-engrs. CD 9/19.

Thomas A. Berling & Son, 212 S. Temple St., Indianapolis, Ind., CA, $359,360, general contract Junior High SCHOOL Banta and Shelby Sts., INDIANAPOLIS, IND. Perry Twp., Nelson Swift, trustee, Indianapolis, Ind. CD 12/11/50, under LB.

Corydon Co., Inc., 729 State Life Bldg., Indianapolis, 6, Ind., Owner Builds, $450,000, 50 HOMES in Irvington Dist., INDIANAPOLIS, IND.

Strobel & Hall, 192 N. Clark St., Chicago 1, Ill., CA. $100,000. FACTORY, 12,000 sq. ft. floor space, CHICAGO, ILL. Sarco Putty Co., 5959 S. Knox St., Chicago 29, Ill. A. E. Strobel, 192 N. Clark St., Chicago 1, Ill., archt. Awarded Sept. 10.

Wolfes Jensen Co., 172 N. Dearborn St., Chicago, 2, Ill., CA, $150,000, tobacco packing PLANT addn., incl. OFFICE CHICAGO, ILL. United States Tobacco Co., 4325 W. 5 St., Chicago, 24, Ill. Schmidt, Garden & Erikson, 104 S. Michigan St., Chicago, 3, Ill., archts. Awarded Sept. 10.

H. F. Friestedt, 450 E. Ohio St., Chicago, 11, Ill., CA $300,000, machine SHOP in Coach Yard, CHICAGO, ILL. New York, Chicago & St. Louis R. R. Co., R. C. Turnbell, engr., Terminal Tower, Cleveland, O. Awarded Sept. 7.

Edward V. Moynahan Co., 2658 Porter St., Detroit, Mich. CA $400,000. 1 story, bsmnt., brick, stone CHURCH, Grand River, DETROIT, MICH. Temple Baptist Parish, 6125 14 St., Detroit, Mich. Arthur Des Rosiers, 15850 James Couzens Dr., Detroit, Mich., archt. CD 1/10/44.

Francis J. Corr, Inc., 1120 Sheridan St., Lansing, Mich. CA $350,000. 1 story, bsmnt., brick, stone CHURCH, Michigan Ave. and Custer St., LANSING, MICH. Church of the Resurrection, Most Rev. J. H. Albers, DD Catholic bishop, 1531 E. Michigan Ave., Lansing, Mich. Orlie J. Munson, 409 Busch Bldg., Lansing, Mich., archt.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES

October 2, Iowa
October 9, Texas

STREETS AND ROADS

October 2, Iowa
October 9, 10, Texas

† **Kansas**—B.A. on or about 10/4—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., restoration flood protection structures and facilities consisting of earthwork, slope, toe protection, concrete for flood wall and corrugated metal pipe for levee and floodwall drainage sys., Part 1, Armourdale Dist. runs from left bank approx. 2,000 ft. upstream from Kansas City Terminal R.R. Bridge to approx. 1,000 ft. upstream from James Street Bridge, CIVENG 23-028-52-62. Plans deposit $25.

† **Ia., Knoxville**—B.A. 10/30—Veterans Admin., Munitions Bldg., Wash., 25, D. C., sewage treatment plant addn., for VA hospital incl. one Digester Bldg. 122 roads, grading, plumbing, heating, electrical work, outside services and other items.

BIDS ASKED—BUILDINGS

† **Tex., Amarillo**—BUILDINGS—B.A. 11/1—U. S. Atomic Energy Comn., Herring Hotel, 8 buildings, Inv. No. 292-52-5. Approx. $750,000. CD 8/3.

▲ **Tex., Tyler**—HOTEL—Bids Asked—Carlton Hotel, c/o Wm. Daniel, chn. Bldg. Comn., Tyler, 15 story 150-room hotel. $1,000,000. CD 3/16.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul.

O. B. Ashbach & Sons, 2-75 Hamline Ave. N., St. Paul, Minn., CA $64,212, Bridge 6496 over Flint Creek 5.3 mi. west of Cook, St. Louis Co.

Barnard-Curtis Co., 808 Phoenix Bldg., Minneapolis, Minn., CA $104,339, Bridge 6763 over overflow channel of Minnesota River, 1.3 mi. southeast of Chaska; CA $79,912, Bridge 6778 over Snake River, Kanabec Co.

Megarry Bros., St. Cloud, Minn. CA $121,208. Minnesota Bridge 4813 and Wisconsin Bridge B-7-1 over St. Croix River west of Grantsburg, Wis., Pine Co. Grand total $369,671. Bids Aug. 31. CD 8/16.

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul.

Megarry Bros., St. Cloud, Minn. LB $178,265. grav. base, plant-mixed bit. surf. 10.7 mi. between 1.5 mi. west of Starbuck and Glenwood, Pope Co.

received no bids Aug. 31, grading 13.4 mi. between west line of Waseca Co. and New Richland, Waseca Co. will re-advertise. Bids Aug. 31. CD 8/16.

▲ **Iowa-Illinois Gas & Electric Co.**, 206 E. 2 St., Davenport, Ia., Owner Builds, $1,000,000, constr. 41 mi. natural gas lines, vicinity of Iowa City and Cedar Rapids, IOWA.

Murray Iron Works, Burlington, Ia., CA, $132,989, steam generating unit, CEDAR FALLS, IA. City, E. H. Kosser, clk., Cedar Falls, Ia. Bids July 19.

† **Joseph L. Pohl**, Nevada, Mo. LB $243,417. emergency levee repairs Missouri River along left bank, Waverly to DeWitt Bends, Inv. 52-38, MISSOURI. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Sept. 14.

Robinson Constr. Co., 709 Main St., Pine Bluff, Ark., CA, $107,758, water sys., EUDORA, ARK. City, Eudora, Ark. Bids Aug. 14, awarded Sept. 14.

Robinson Constr. Co., 709 Main St., Pine Bluff, Ark., CA $131,206, sewerage sys., EUDORA, ARK. City, Eudora, Ark. Bids Aug. 14, awarded Sept. 14. CD 8/9.

SOUTH DAKOTA—State Hy. Comn., Pierre.

Dave Gustafson Co., Inc., 502 E. 6 St., Sioux Falls, S. D., CA $274,283, grav. surf. 14.895 mi. Proj. F 172 (10), Edmunds Co. Bids Sept. 11. CD 8/30.

▲ **I. O. Teigen Constr. Co.**, Princeton, Minn., CA $556,037, sub-stations, Minnehaha Co.;

McHugo Comg. Co., Mankato, Minn., CA $308,190, Sect. 5, rural distr. lines, Minnehaha Co.;

Crawford Electric Co., North Platte, Neb., CA $230,953, Sect. 6, rural distr. lines, Minnehaha Co. SOUTH DAKOTA. Grand total $1,095,180. East River Electric Power Co-operative, Madison, S. D. Bids Aug. 30. CD 8/17 and 8/16.

NEBRASKA—State Dpt. Roads & Irrigation, Lincoln.

Diamond Eng. Co., Grand Island, Neb., LB. $82,079, bridges, Clarkson south, Colfax Co.

Benzing Co., McCook, Neb., LB $97,117, culverts, S-45, Howells South.

Christensen Corp., Fremont, Neb., LB. $117,685, one bridge S-421, Nemaha south, Nemaha Co.; LB. $79,161, one bridge, F-326, Decatur-Winnebago, Thurston Co.

Capital Bridge Co., 1001 N. 9 St., Lincoln, Neb., LB. $94,984, bridges, S-391, Palmyra south, Otoe Co. Bids Sept 13. CD 9/6 under Bridges and Streets and Roads.

NEBRASKA—State Dpt. Roads & Irrigation, Lincoln.

Missouri Valley Constr. Co., 1029 Omaha Natl. Bank Bldg., Omaha, Neb., LB $349,977, c. conc. paving, asph. concrete resurf. F-303, Grand Island-Chapman, Hall and Merrick Counties; LB $198,710, c. conc. paving, b. conc. resurf. F-3, Grand Island-Wood River, Hall Co.; LB. $162,329, b. conc. surf. course F-406 and SF-65401, Stratton-Culbertson and Trenton south.

Theisen Bros., Osmond, Neb., LB. $123,757, grading, F-468, Leigh-Howells, Colfax Co. Bids Sept. 13. CD 9/16.

Dupsky Constr. Co., Wayne, Neb., CA. $156,888. rural distr. lines and other work, Wayne, Pierce and Knox Counties. NEBRASKA. Wayne County Rural Pub. Power Dist., Wayne, Neb. Bids Sept. 7. CD 8/22.

Co-operative Electric Power & Light Co., Iola, Kan. Force Account. $110,000. 60 mi. rural distr. lines, single-phase, Allen, Neosho, Woodson, Wilson and Coffey Counties, KANSAS. CD 5/16/49.

Southwestern Associated Telephone Co., Gonzales, Tex., Force Account. $128,000. pole telephone lines, GONZALES, TEX. CD 9/4.

City, City Hall, 900 Brazos St., Houston, Tex. Force Account, $100,000. sanitary sewer lines $90,000, storm sewer drainage lines, in newly annexed areas; HOUSTON, TEX. L. Fugate, city engr. CD 6/6.

Cottle Co. Soil Conservation & Water Dist., Paducah, Tex. Own Forces, under supervision J. C. Wilcox, $125,000. construct small livestock earthen water supply dams, PADUCAH, TEX. CD 9/12.

† **Southwestern Gear Works**, 117 N. Palmer St., Houston, Tex., LB. $259,314. six regulating gate hoists for 50x50 ft. regulating gates and one lot of metal work for spillway, Spec. D-4519 (IBWC) Falcon Dam, ROMA, TEX. Bureau Reclamation, Dpt. Interior, El Paso, Tex. Bids Sept. 7. CD 8/10.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Rieke Bros. Constr. Co.**, 3201 Merriam Blvd., Kansas City, Mo. CA $1,000,000. 150 DWELLINGS, KANSAS CITY, KAN. Ray Meitner, 4759 Rainbow St., Kansas City, Mo.

Galland-Henning Mfg. Co., 2753 S. 31 St., Milwaukee, Wis., CA. $245,000, scrap metal baling SHOP, DALLAS, TEX. Liberty Iron & Metal Co., Industrial Blvd. at Hines St., Dallas, Tex. CD 5/31.

Republic Investment Corp., Pasadena, Tex., Own Forces. $345,000. 45 RESIDENCES, FREEPORT, TEX. CD 8/2.

Monarch Building Co., 1st. Natl. Bank Bldg., Houston, Tex., Owner builds. $345,000. 40 RESIDENCES, HOUSTON, TEX.

Suburban Homes Realty Co., 9102 Humble Rd., Houston, Tex. Own Forces. $315,000, 37 dwellings, Pine Oak St.; Approx. $300,000, 35 DWELLINGS, Parker and Wellington St., HOUSTON, TEX. CD 3/1.

Jersey Products Co., Kingsville, Tex., rejected bids June 25, dairy processing PLANT, KINGSVILLE, TEX. LB. $274,500. CD 6/13.

▲ **Aluminum Co. of America**, Port Lavaca, Tex., Separate Contracts under owner's supervision. Approx. $80,000,000-$100,000,000. aluminum smelting and processing PLANT, ROCKDALE, TEX. CD 731.

Ed Friedrich Sales Corp., 1117 E. Commerce St., San Antonio Tex., Own Forces, Approx. $250,000. PLANT addn., SAN ANTONIO, TEX.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS

October 10, California

† **Calif., Oxnard**—DISTRIBUTION SYSTEM—B.A. 10/8—U. S. Eng., 751 S. Figueroa St., Los Angeles, electrical distr. sys. at Oxnard Air Force Base, $60,000. CD 5/21.

Calif., Los Angeles—B.A. 10/9—Bd. Supervs., Los Angeles Co. Hall of Records, installing sanitary sewers in Mooney Dr., Garvey, C. I. 1279, $129,250. C. E. Arnold, co. engr. CD 12/1/48.

Wash., Tacoma—B.A. 10/9—Port of Tacoma, Pier No. 2, Port of Tacoma Terminal, dredging extension to Port Industrial Waterway, $300,000. G. W. Osgood, mgr. and ch. engr. CD 11/2/45, under Unclassified.

BIDS ASKED—BUILDINGS

Calif., Compton—SCHOOL—B. A. 10/9 Compton Union High School Dist., 601 S. Acacia St., Compton, Calif. rein.-con. Whaley Junior High School, $300,000. Plans deposit $100. Daniel, Mann, Johnson & Mendenhall 672 S. Lafayette Park Pl., Los Angeles, archts. CD 4/18.

Calif., Downey—SCHOOL—B.A. 10/9—Downey Union High School Dist., 5821 E. Firestone St., frame, stucco North Downey Junior High School, $300,000. Plans deposit $25. Extended date. Allison & Rible 625 S. Westmoreland St., Los Angeles, archts. CD 8/27.

Calif., Los Angeles—BAKERY—B.A. 10/10—Barbara Ann Baking Co., 3545 Pasadena Ave., 2 story bakery, $225,000. Bennett & Bennett, 1165 E. Colorado St., Pasadena, archts.

Ore., Beaverton—HIGH SCHOOL—B.A. 10/11—Union High School Dist. 10, Beaverton, 2 story 15-room rein.-con. high school and gymnasium. Plans deposit $25. Freeman, Hayslip & Tuft, 2040 S. W. 3 St., Portland, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **ARIZONA**—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix

Arizona Sand & Rock, S. Seventh St., Phoenix, Ariz., CA, $729,848, heavy constr. over new alignment 3 mi., 3 mi. verde valley sector Black Canyon Hy., Yavapai Co.

Kolleb Constr. Co., 610 N. Central St., Phoenix, Ariz., CA, $152,282, grading, select material 4 mi. Kirkland-Hillside Hy., Yavapai Co., Bids 9/6.

B. L. Gustafson, 1700 E. Campbell, Phoenix, Ariz., CA $167,867, bit. plant mix 1½ mi. highway, Maricopa Co., Bids 9/5, CD 8/29.

Martin Constr. Co., 600 E. 20 St., Tucson, Ariz., CA $189,304, bit. 6 1/3 mi. Clifton-Safford Hy. Graham Co.

Tanner Constr. Co., 731 N. 19 Ave., Phoenix, Ariz., CA, $146,767, surf. 20 blocks, E. McDowell St., Maricopa Co. Grand total, $1,386,068. Awarded Sept. 8.

ARIZONA—State Hy. Dpt., 17 Ave. and Jackson St., Phoenix

Young & Smith Constr. Co., Beason Bldg., Salt Lake City, Utah, CA, $243,615, steel girder bridge 1½ mi. approach road, Mohave Co. Award Sept. 8.

† **OREGON**—Booneville Power Admin., 827 N. E. Oregon St., Portland,

Excavators, Inc., 621 9th St. N., Seattle, Wash., CA. $203,433, bridges and access road, Columbia-Olympia Line, Inv. 6022, Marion Co. Bids Sept. 10. CD 8/29.

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† **Power City Electric Co.**, N. 920 Howard St., Spokane, Wash., CA, $361,905, construct Banlon-Port Orford and Port Orford-Gold Beach 115 kv line, Inv. 6020, Coos and Curry Counties, OREGON. Bonneville Power Admin., 827 N. E. Oregon St., Portland, Ore. Bids Sept. 12, awarded Sept. 12.

▲† **Pelton Water Wheel Co.**, 2929 19 St., San Francisco, Calif., CA, $1,707,590, three turbines for Lookout Point Dam, Civeng 35-026-51-310, Lane Co., OREGON. U. S. Eng., Pittock Block, Portland, Ore., Bids Aug. 8, awarded Sept. 14. CD 8/16, under LB.

† **A. J. Cleff Constr. Co.**, 410 4 Ave., Seattle, Wash., CA, $855,473, est. $968,018, constr. concrete-lined Sheffield Tunnel, Carpinteria section, South Coast Conduit Cachuma Proj., Spec. DC-3500, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Goleta, Calif. Bids Aug. 30, awarded Sept. 11. CD 9/6, under LB.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento, Calif.

Trewhitt, Shields & Fisher, 926 Parallel Ave., Fresno Calif., LB, $180,618, rein.-con. bridge across Tule River and Poplar Ditch south of Porterville, Tulare Co. Bids Sept. 2. CD 8/23.

Wellnitz & DeNarde, 1115 20 St., San Francisco, Calif., CA, $122,500, Hamilton PLAYGROUND IMPRVS., SAN FRANCISCO, CALIF. Recreation & Park Comn., McLaren Lodge, Golden Gate Park, San Francisco, Calif. Bids Sept. 11, awarded Sept. 13. CD 8/30.

Duncanson-Harrelson Co., 530 West Cutting Blvd., Richmond, Calif., LB, $183,700, south east collecting sewers, Sec. E-1, East Influent Interceptor Sewer, SAN FRANCISCO, CALIF. Dpt. P. Pks., City Hall, San Francisco, Calif. Bids Sept. 12. CD 8/30.

BUILDINGS

LOW BIDS AND CONTRACTS

Lindgren & Swinnerton, 605 W. Olympic Blvd., Los Angeles, Calif., CA, $500,000, precast concrete FACTORY and WAREHOUSE, EAST LOS ANGELES, CALIF. Crown Willamette, Paper Corp., 2945 E. 12 St., Los Angeles, Calif. Albert C. Martin & Assoc., 33 S. Beaudry Ave., Los Angeles, Calif., archts. CD 12/12/50.

Alliance Constr. Co., 308 Montgomery Rd., South Pasadena, Calif., CA, construct, manage, finance, 135 housing units for Naval Officer School and Air Station, MONTEREY, CALIF. Twelfth Naval Dist., Federal Bldg., San Francisco 2, Calif.

Frank Payne & Son, Box 72, Modesto, Calif., LB $334,900, Parkmead SCHOOL, WALNUT CREEK, CALIF. Walnut Creek Elementary School Dist., Walnut Creek, Calif. Bids Aug. 8. CD 7/27.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Palmer Constructors** (Peter Kiewit Sons Co., 1024 Omaha Natl. Bank Bldg., Omaha, Neb., Coker Constr. Co., Morrison-Knudsen Co. Inc., 319 Broadway, Boise, Idaho) LB, $17,348,865, est. $18,175,568 (1) Eklutna tunnel with intake at elevation 794.00 and alterations to existing dam.

Grafe-Callahan Constr. Co., First Natl. Bank Bldg., Dallas 1, Tex., **Rhoades Shofner Constr. Co., Inc.**, 3869 Medford St., Los Angeles 33, Calif., and **D. G. Gordon**, 1900 31 St., Denver 5, Colo., LB, $16,391,192, est. $15,687,384 (2) Eklutna tunnel with intake at elevation 942.68, Spec. DC-3523, Eklutna Proj., ALASKA. Bureau Reclamation. Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Bids Sept. 11. CD 8/14.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., Pont Viau (P.O. Montreal) B.A. 10/1—Mayor, filtration plant, water mains, water intake, equipment, and machinery supply and installation, 100,000 gal. steel tower for Municipality. Plans deposit $50. C. E. Gravel, Town Hall, Town engr.

B. C., Kamloops—B.A. 10/3—J. C. Rutledge, secy. Defence Production, 70 Lyon St., Ottawa, Ont., rein.-con. reservoir, pump house and water mains at No. 15 X R.C.A.F. Depot, Approx. $125,000. Plans deposit $25.

BIDS ASKED—BUILDINGS

N. B., Moncton—HEALTH CENTRE—B.A. 10/6—Dr. F. W. Porter, Hospital Bd., Moncton, health centre. Plans deposit $25. Govan & Assoc., 515 Jarvis St., Toronto, Ont., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEWFOUNDLAND—Province of Newfoundland, St. John's

Western Constr. Co., ..., corner brook, Newfoundland, $125,000, 10 mi. road construction between Port Aux Basques and Isle au Morte.

Chester Dawe Ltd., Shaw's Street, St. John's, Newfoundland, CA, $375,000, wharf reconstruction, TWILLINGATE, NEWFOUNDLAND, Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. R. Blais, c/o owner, ch. engr. Awarded Sept. 14.

Continental Constr. Co., Dartmouth, N. S., LB, $264,850 wharf reconstruction, LOCKEPORT, N. S. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. CD 4/15/46.

McGinnis & O'Connor Ltd., 394 King St. E., Kingston, Ont., CA, approx. $225,000, hot mix, hot laid asph. resurfacing roads at R. M. College Artillery Park, KINGSTON, ONT. Defence Constr. Ltd., 441 Queen's Quay W, Toronto, 2B, Ont. S. M. Connolly, c/o owner, engr. CD 7/25.

McNamara Constr. Co. Ltd., 42 Industrial St., Leaside, Ont., LB, $641,200, dredging in harbour, Class A and B material, LITTLE CURRENT, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Sept. 12. CD 8/30.

Canadian Dredge & Dock Co., Harbour Commission Bldg., Toronto, Ont., LB, $833,750, dredging in harbour, PORT ARTHUR, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Sept. 12. CD 8/30.

QUEBEC—Dpt. Roads, Quebec City, Que. (Prov. Govt.) Verochio Ltd., 4340 Rosedale Ave., Montreal, Que., CA $148,471, reconstr. Route 1, 3 mi. near Tring Junction, Beauce Co. E. Gohier, c/o owner, engr.

Northland Constr. Co., Val D'Or, Que., CA $300,000. 4.2 mi. spur line to Golden Manitou minesite 35 mi. east of VAL D'OR, QUE. Canadian National Railways, McGill St., Montreal, Que. Awarded Sept. 17.

BUILDINGS

LOW BIDS AND CONTRACTS

Winnipeg Supply & Fuel Co. Ltd. 812 Boyd Bldg., Winnipeg, Man., LB, $835,681, INFIRMARY UNIT for mental disease hospital at SELKIRK, MAN. Dpt. P. Wks., Parliament Bldgs., Winnipeg, Man. Bids Aug. 29. CD 8/15.

J. T. Colbourne Constr. Co. Ltd., 388 Weston Rd., Toronto, Ont., CA, $300,000, 1 story, 60x234 ft., concrete, structural steel, brick SCHOOL, MALTON, ONT. Union School Bd., Malton, Ont. R. W. Hall, 235 W. Queen St., Brampton, archt.

▲ **Foundation Co. of Canada Ltd.**, 166 Douglas St. W., Sudbury, Ont., CA, $1,043,000, 1 and 2 story, 300x350 ft., rein.-con., steel concrete HOME for the Aged, SUDBURY, ONT. Sudbury & District Home for the Aged, 83 Cedar St., Sudbury Ont. Bids Aug. 28, awarded Sept. 17.

M. F. Schurman Co. Ltd., Summerside, P.E.I., Approx. $177,845, science service LABORATORY for Dpt. Agriculture, CHARLOTTETOWN, P.E.I. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. G. Brault, c/o owner, archt.

FOREIGN

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Govt. of France (Colonial Div.) Parish, France, Own Forces. Approx. $105,000. harbour installations and cold storage plant, ST. PIERRE, FRENCH ISLANDS of ST. PIERRE and MIQUELON. CD 8/15/49.

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CONSTRUCTION REPORTS
Third Section

SOUTH

BIDS ASKED—BUILDINGS

▲ Ky., Valley Station—SCHOOL—B.A. 10/11—Jefferson Co. Bd. Educ., 618 W. Jefferson St., Louisville, 3 story, brick school addn., alterations, $1,000,000. Plans deposit $25, Fred Hartstein, McDowell Bldg., Louisville, archt. E. R. Ronald & Assoc., 554 S. 3 St., Louisville, engrs. CD 4/12.

BUILDINGS
LOW BIDS AND CONTRACTS

▲ Robert R. Marquis, 2229 County St., Portsmouth, Va., CA. Approx. $1,047,908, Oakwood SCHOOL and Norview School, NORFOLK, VA. Norfolk Co. Portsmouth, Va., Bids Sept. 14. J. Binford Walford & O. Pendleton Wright, 103 E. Cary St., Richmond, Va., archts.

▲ Sweitzer Willig Co., Trafton Ave., Lexington, Ky. LB $1,456,100. Contr. A; Harget Constr. Co., 113 Walton Ave., Lexington, Ky., LB $1,814,421; Contr. B, 397 HOUSING units, Proj. Ky. 4, Ky. 3, LEXINGTON, KY. Lexington Municipal Housing Comm., 600 Blue Grass Park Dr., Lexington, Ky. Bids Aug. 30. CD 7/30.

MIDDLE WEST

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲ Underground Constr., Inc., 3840 Prospect St., Indianapolis, Ind., CA, $1,299,497, est. $1,350,000, Pogue's Run Interceptor Sewer, INDIANAPOLIS, IND. Bd. P. Wks., E. A. Gardner, chn., City Hall, Indianapolis, 4, Ind. Bids Sept. 17, awarded Sept. 18. CD 9/4.

BUILDINGS
LOW BIDS AND CONTRACTS

▲† Sherry Richards Co., 201 N. Wells St., Chicago, Ill., Willcox Constr. Co., Inc., 29-28 41 Ave., Long Island City, N. Y., Corbetta Constr. Co., 220 E. 42 St., New York, N. Y., and James McHugh Constr. Co., 6449 S. Park St., Chicago, Ill., CA, Est. over $14,000,000. FINANCE CENTER, Aultman Ave. and Post Rd., FORT BENJAMIN HARRISON, IND. U. S. Eng., 540 Merchandise Mart, Chicago, 54, Ill. Bids Sept. 11. CD 9/14, under LB.

Sollitt Constr. Co., 301 S. Columbia St., South Bend, Ind., CA, $850,000 FACTORY Addn., SOUTH BEND, IND. Studebaker Corp., South Bend, Ind. Awarded Sept. 9.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲ Fred Weber Contractor, Inc., 7929 Alabama Ave., St. Louis 11, Mo. LB $1,078,587, est. $1,678,595. 150x5,400 ft. North-South Runway, 2,700 ft. exten. of East-West Runway, 75x6,000 ft. taxiway at Lambert-St. Louis Municipal Airport, Robertson, St. Louis Co. ST. LOUIS, MO. City, Frank J. McDevitt, pres. Bd. Pub. Service, 304 City Hall, 12 and Market Sts., St. Louis, Mo. Bids Sept. 18. CD 8/10.

BUILDINGS
LOW BIDDERS AN CONTRACTS

▲ Hunkin-Conkey Constr. Co., 1740 E. 12 St., Cleveland, O., Arundel Corp., Pier 2, Pratt St., Baltimore, Md., and L. E. Dixon Co., 409 S. California St., San Gabriel, Calif. CA $75,000,000 PLANT to process magnetic taconite ore, BEAVER BAY, MINN. Reserve Mining Co., (Republic Steel Co., Cleveland, O., National Steel Co., Pittsburgh, Pa. and Armco Middletown, O.) managed by Oglebay-Norton & Co., Hanna Bldg., Cleveland, O. CD 12/7/50.

FAR WEST

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

Elmer J. Freethy, 1432 Kearney St., El Cerrito, Calif., LB, $520,273, pretreatment works addns. of San Pablo Filter Plant, El Cerrito, L.S. 553, OAKLAND, CALIF. East Bay Municipal Utility Dist., 512 16 St., Oakland, Calif. Bids Sept. 14.

BUILDINGS
LOW BIDS AND CONTRACTS

Lewis C. Nelson & Sons, 3015 N. McCall St., Selmar, Calif., CA, $529,400, SCHOOL, PINEDALE, CALIF. Pinedale Elementary School Dist., L. G. Olinder, principal, Box 61, Pinedale, Calif. Bids Aug. 16. CD 8/27, under LB.

U. S. POSSESSIONS

BUILDINGS
LOW BIDS AND CONTRACTS

Republic Constr. & Maintenance Co., Inc., Box 2036, Ancon, Canal Zone, CA, $700,000 2 HOSPITALS, VIRGIN ISLANDS, Dist. Eng. Dpt. Interior, P. O. Box 479, St. Thomas, Virgin Islands.

OFFICIAL PROPOSALS

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SEND COPY TO OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 18, N. Y.

Bids: October 9, 1951

Conical Plug Valves, Etc.

CONTRACT 412

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, October 9, 1951, for Contract 412, for furnishing, testing and delivering eight 48-inch and two 36-inch cast steel motor-operated conical plug valves, two 24-inch and one 12-inch cast iron motor-operated conical plug valves, one 14-inch cast iron manually-operated conical plug valve, one 20-inch cast iron motor-operated gate valve, pipe couplings and miscellaneous valves for installation in the intake and outlet chambers of the Neversink tunnel, the Downsville release water chamber and the outlet chamber of the East Delaware tunnel of the Delaware Aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of thirty-five thousand dollars ($35,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD S. BURKE, Secretary.

Bids: October 9, 1951

New Jersey Parkway Work

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 4 PARKWAY, SECTIONS 6J & 7D
Construction of Route 4 Parkway, Sections 6J and 7D, Bridges at Myrtle Avenue, Lehigh Valley Railroad, and Staten Island Rapid Transit Railway, and Grading in Cranford Township, Union County, Federal Project No. U-188(21). The principal items of construction are:

Estimated:

Bridge Items
9,825 cu. yds. Concrete in Structures
2,704,650 lbs. Structural Steel
993,115 lbs. Reinforcement Steel in Structures
13,480 lin. ft. Steel Piles
2,733 sq. ft. Random Ashlar Masonry
Roadway Items
14,179 cu. yds. Roadway Excavation-Earth
2,531 cu. yds. Porous Fill
1,244 lin. ft. Rein. Conc. Culvert Pipe

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Ave., Trenton, N. J., on Tuesday, October 9, 1951, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 646, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 268 North Broad Street, Elizabeth, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: October 11, 1951

Sergeant's House at New York Plaza Office

FURNISH ALL LABOR, MATERIALS AND EQUIPMENT TO CONSTRUCT SERGEANT'S HOUSE AT THE NEW YORK PLAZA OFFICE BUILDING OF THE HOLLAND TUNNEL

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M 135

Sealed proposals for furnishing all labor, materials and equipment to construct Sergeant's House at New York Plaza Office Building at Canal and Varick Streets, New York City, N. Y., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111 8th Ave., New York, 11, until 11:00 A.M. October 11, 1951, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
HOWARD S. CULLMAN, CHAIRMAN
NEW YORK, N. Y.

(Continued on page 154)

OFFICIAL PROPOSALS

Bids: October 2, 1951

Treatment and Cell Block Wing

Notice is hereby given that sealed proposals will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

General work, plumbing, heating and ventilating, electric and prison equipment for Treatment and cell block wing at the New Jersey Reformatory at Bordentown, New Jersey.

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, W. State St., Trenton 7, New Jersey on Tuesday, October 2, 1951 at two (2:00) o'clock and will be opened and read immediately thereafter. Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% of the amount of the bid, cash, in the amount of 5% of the bid, or a bid bond in the amount of 5% of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for surety bond in the full amount of the contract, of a company authorized to do business in the State of New Jersey.

Plans and specifications, form of bid, contract and bond for the proposed work are on file and may be obtained upon application to the Director, Division of Purchase and Property, State House, Trenton, New Jersey on deposit of twenty-five dollars ($25.00) for each set; this amount to be refunded to the bidder upon receipt of same in good condition within 30 days after the award of the contract.

DEPARTMENT OF THE TREASURY
Division of Purchase and Property
Fred V. Ferber, Director

Bids: October 8, 1951

Paving Extension of North Avenue

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
CONTRACT NA-160.002

Sealed proposals for paving extension of North Avenue at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:00 A.M. Monday, October 8, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10. per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, September 27, 1951

Bids: October 15, 1951

Connections to Henry Hudson Parkway
Stage I—Superstructure

THE PORT OF NEW YORK AUTHORITY
GEORGE WASHINGTON BRIDGE
CONTRACT GWB-130.002

Sealed proposals for the construction of the superstructure for connections to the Henry Hudson Parkway, Stage I, at the Manhattan Approaches to the George Washington Bridge will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M. Monday, October 15, 1951.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25. per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, September 27, 1951

OFFICIAL PROPOSALS

Bids: October 3, 1951

New Castle Avenue & Ridge Road

Sealed proposals will be received by the State Highway Department at its offices, Dover, Delaware until 2:00 P.M., Eastern Standard Time, October 3, 1951, and at that time and place publicly opened for contracts involving the following approximate quantities:

CONTRACT E-1168
New Castle County
Widening & Resurfacing—1.537 Miles

100	C. Y. Borrow Pit Stripping
550	C. Y. Selected Borrow
3,200	T. W. B. Macadam
2,750	T. Hot-Mix Asphalt
50	S. Y. Patching
120	L. F. 12" R. C. Pipe
2	Each Catch Basins
1,000	Lbs. Castings
20	Each Adjusted Catch Basins
25	T. Sand

The Employment Agency for this Contract shall be the Delaware Employment Service, 601 Shipley Street, Wilmington, Delaware.

Attention is called to the Special Provisions in the proposal, specifications and contract agreement.

Performance of contract shall commence within ten (10) days after execution of the contract and be completed as specified.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the Department.

Each proposal must be accompanied by a surety bond, certified check, or money to the amount of at least ten (10) per centum of the total amount of the proposal.

The envelope containing the proposal must be marked "Proposal for the construction of State Highway Contract No. ....."

The Contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

The right is reserved to reject any or all bids.

Complete sets of plans and specifications may be obtained after September 24, 1951, upon receipt of five dollars ($5.00) for each set, which amount will not be refunded.

Make checks payable to the State Highway Department.

STATE HIGHWAY DEPARTMENT
By: J. Gordon Smith,
Chairman

R. A. Haber, Chief Engineer
Dover, Delaware
September 19, 1951

Bids: October 16, 1951

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

SIR ADAM BECK-NIAGARA
GENERATING STATION NO. 2
TENDERS FOR CONSTRUCTION OF
HYDRAULIC TUNNEL

Sealed tenders, in duplicate, addressed to the undersigned and clearly marked "Tender for Hydraulic Tunnel, Section No. 5 ....., Sir Adam Beck-Niagara Generating Station No. 2" will be received up to 4 p.m., Eastern Standard Time,

Tuesday, October 16th, 1951

for the construction of the Section of Hydraulic Tunnel, approximately 3,680 feet in length, or circular cross-section, concrete-lined, with 45 feet finished diameter. The principal features of the work to be performed in the Section comprise:—one offset work shaft, with cross-cut drift to the tunnel, excavation of tunnel, installation of structural steel support, construction of concrete lining reinforced where required, grouting of rock and behind concrete lining wherever necessary, and dewatering of the work.

Copies of Form of Agreement, Information for and Instructions to Tenderers, General Conditions and Specification, Plans, Form of Tender and Labour Agreement may be obtained on or after September 19th, 1951 from the Director of Supply, 620 University Avenue, Toronto, Ontario, upon payment of a deposit in the amount of $1,000.00 per set, which amount will be refunded upon submission of a tender accompanied by the required security. If no such tender is submitted but the documents are returned in good order $750.00 of the said deposit will be returned. Failing return of the documents in good order the Commission will retain the full amount of the deposit.

Each tender for Section No. 5 of the Hydraulic Tunnel must be accompanied by a certified cheque on a Canadian Chartered Bank for the sum of Three Hundred Thousand Dollars ($300,000.00) payable to the order of the Commission. The Tenderer to whom a contract is awarded shall be required to provide a performance bond satisfactory to the Commission for fifty per cent (50%) of its tender price. Each certified cheque, furnished by each Tenderer, will be retained by the Commission until the contract for the Section has been executed and the required performance bond has been furnished. As soon as possible thereafter, the certified cheques of the unsuccessful tenderers will be returned. If a Tenderer after being awarded a contract for the Section, refuses to execute the contract or fails to furnish the required performance bond, One Hundred and Fifty Thousand Dollars ($150,000.00) of the proceeds of the certified cheque of such Tenderer shall be forfeited to the Commission as ascertained and liquidated damages and the balance returned. If the successful tenderer fulfills the obligations as to executing a contract and furnishing a performance bond, its certified cheque will be returned.

The lowest or any tender will not necessarily be accepted.

Robert H. Saunders, C.B.E., K.C.,
Chairman, and Members of The
Hydro-Electric Power Commission of Ontario,
620 University Avenue,
TORONTO 2, Ontario

Engineering News-Record

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OFFICIAL PROPOSALS

Bids: October 3, 1951

Varied Highway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on Wednesday, October 3, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days after award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1 G. L. Nickerson, Dist. Engr., 333 Broadway, Albany, N. Y.				
		DISTRICT No. 8 J. S. Bixby, Pleasant Valley Road, Poughkeepsie, N. Y.				
12 Counties & 5 Cities	FARC51-17 FARC51-24	Installation of Automatic Recording Traffic Counters in Dists. 1 & 8 Project No. SWHP 1 (8)	.....	Installation of 25 Automatic Recording Traffic Counters	$2,300 Plans $15	$40,000
		DISTRICT No. 2 L. Ketchum, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
		DISTRICT No. 3 Wm. Robinson, Dist. Engr., Weigh Lock Bldg., Syracuse, N. Y.				
		DISTRICT No. 7 R. F. Hall, Dist. Engr., 444 Van Duzee St., Watertown, N. Y.				
13 Counties & 5 Cities	FARC51-18 FARC51-19 FARC51-23	Installation of Automatic Recording Traffic Counters in Dists. 2, 3, & 7 Project No. SWHP 1 (8)	.....	Installation of 28 Automatic Recording Traffic Counters	$2,500 Plans $15	$42,000
		DISTRICT No. 2 L. Ketchum, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Montgomery	FAS851-23	Scotch Bush-Scotch Church Project No. S362(1)	3.19	Bit. Treated Graded Gravel	$8,000 Plans $15	$157,000
		DISTRICT No. 4 A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Monroe	OT 51-7 RC 51-71 ST 51-6	New York State Thruway, Ontario Section, Subd. 8 & 9 West Henrietta-Rochester S. H. 62 Rush-Henrietta, S. H. 1283 East River Rd., Middle Rd., Pinnacle Rd., Henrietta-Pittsford Town Line Rd.	7.65	Reinf. Conc. 28', 44' 2 @ 25° wide, 9" Thk.=7.02 mi. Plans $100 Asp. Conc. Ty. 1A, Opt.=0.63 mi. RR Sep. 30' 4" I-Beam, RR Sep. Rig. Fr., 29' 11½" Gr. Sep. I-Beam 4 Sp. 2 at 47' 10½", 2 at 77' 4½" (Alpha) Gr. Sep. I-Beam 5 Sp., 2 at 42', 2 at 64' (Alpha), 1 at 80' (Alpha), Gr. Sep. I-Beam 4 Sp., 2 at 37' 7", 2 at 65' 2" (Alpha), Gr. Sep. I-Beam 6 Sp. 2 at 45', 2 at 63' 10" (Alpha), 2 at 70' 4" (Alpha)	$280,000	$4,730,000
Genesee	W.S. No. 9 W.S. No. 41	Truck Weighing Station Turnout On Alexander-Canawaugus, Pt. 2, S. H. 8431 Crittenden-Corfu, S. H. 8215	0.48	Asp. Conc. Ty. 1A, Opt.	$1,200 Plans $10	$20,000
Monroe	M-51-5	Gates 3 & 4 Barge Canal Harbor Dam: City of Rochester		Construct New Concrete Apron	$2,600 Plans $10	$45,940
Genesee	FAC 51-4 FARC51-37	Batavia City: Pearl Street Corfu-Batavia, S. H. 8283 Project No. U377(11)	0.95	Asp. Conc. Type 2A	$17,000 Plans $15	$290,000
Genesee Monroe Wyoming	FARC51-48	Elba-Byron, Pt. 1 & 2, S. H. 48-14, S. H. 48-13 Attica-Batavia, Pt. 1, S.H. 8022 Attica-Village: Market & Main Sts., S. H. 9224 Ridge, Pt. 1, 2, 3, & 4, S. H. 6, 165, 256, 257 Project Nos. S235(3), F44(3), F402(7)	18.80	Landscaping	$1,200 Plans $10	$23,000
Orleans	FAS851-24	S. H. 392-Clarendon-Monroe County Line, Pt. 2 Project No. S242(2)	2.34	Bt. Mac. Rd. Mix	$6,000 Plans $10	$113,000
		DISTRICT No. 6 H. F. Brumm, Dist. Engr., 30 West Main St., Hornell, N. Y.				
		DISTRICT No. 9 F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
10 Counties & 4 Cities	FARC51-22 FARC51-25	Installation of Automatic Recording Traffic Counters in Dist. 6 & 9 Project No. SWHP 1 (8)	.....	Installation of 20 Automatic Recording Traffic Counters	$1,500 Plans $15	$30,000
		DISTRICT No. 8 J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Westchester	RC51-72	Mamaroneck Village, S. H. 5726	0.21	Storm Drain System	$1,000 Plans $10	$18,000
		DISTRICT No. 9 F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
Broome	FAC 51-5 FARC51-50	Binghamton City: Court St., FAC48-7 Vestal, S. H. 420; Park Bridge, S. H. 127 and Binghamton-Windsor, Pt. 2, S. H. 5022 Project No. U401(8); U344(17)	2.34	Landscaping	$1,000 Plans $10	$18,000

Special attention of bidders is called to "General Information for bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS

Bids: October 15, 1951

Expansion of Temporary Terminal Building—Phase 4

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-160.004

Sealed proposals for expanding and altering the Temporary Terminal Building at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:45 A.M. Monday, October 15, 1951 at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25. per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, September 27, 1951

U. S. Government

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS, Foot of Prytania St., New Orleans 9, La.—Sealed bids will be received in this office until 11:00 a.m., CST, October 16, 1951, and then publicly opened for construction of Bayou Boef Lock, St. Mary Parish, La., New Orleans District. The principal features involved are approximately 300,000 cubic yards of earthwork, 12,000 cubic yards of concrete, 1,147,000 pounds of steel reinforcement, 22,14) square feet of steel sheet piling, 3,700 linear feet of timber guide walls, 2 sets of structural steel sector gates, electrical work and operating machinery. Further information on application.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3545) will be received by Bureau of Reclamation, Arapahoe, Nebraska, until October 11, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork and structures. Cambridge lateral system, laterals 2.3, 3.4, 4.6, 6.2, 6.3, 7.1, 8.8, and 10.6, and sublaterals, Cambridge Unit, Frenchman-Cambridge Division, Nebraska, Missouri River Basin Project. The work extends from approximately 4 miles west of Holbrook to Arapahoe, Nebraska. Principal items are approximately: 98,000 cu. yds. excavation; 800 cu. yds. concrete; 23 M.b.m. timber; 21,000 lbs. gates and metalwork; 6,800 lin. ft. concrete pipe; and other work. Time allowed for completion will be 300 days. For particulars, address Bureau of Reclamation, Arapahoe, Nebraska; or Building 53, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3546) will be received by Bureau of Reclamation, Huron, South Dakota until October 11, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of the Ft. Randall-Sioux City 230-kv transmission line, Missouri River Basin Project, South Dakota. The work is situated in the SE corner of South Dakota between Ft. Randall, South Dakota, and Sioux City, Iowa. The transmission line will be approximately 122 miles long and will consist of a 3-phase single circuit strung on approximately 818 double-circuit steel towers on concrete footings. The line will have 2 overhead ground wires for the entire length. Contractor is to furnish all materials except structural steel for towers. Time allowed for completion will be 760 days. For particulars, address Bureau of Reclamation, Huron, South Dakota; or Building 53, Denver Federal Center, Denver, Colorado.

(Continued on page 156)

CONTRACTORS
Watch this Section
for New Projects

Publish your announcement thru the "Proposals Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

(Continued from page 155)

Bids: October 22, 1951

Transit Sheds & Shipping Facilities

PUERTO RICO TRANSPORTATION AUTHORITY

The Puerto Rico Transportation Authority will receive sealed bids for the construction of Transit Sheds and Shipping Facilities, until 2:00 P.M. (Puerto Rico Time) on the 22nd day of October, 1951, at the office of its General Manager at Building 53, Isla Grande Airport, San Juan, Puerto Rico, at which time and place all bids will be publicly opened and read aloud.

The construction will consist principally of transit sheds, miscellaneous buildings, filling, grading, concrete and bituminous paving, railroad tracks, electric lighting, piping, storm drains and other facilities.

The successful bidder will be required to furnish satisfactory performance and payment bond or bonds.

Proposed forms of contract documents, including plans and specifications, are on file at the office of the Chief Engineer of the Puerto Rico Transportation Authority, at Building 53, Isla Grande Airport, San Juan, Puerto Rico.

Copies of the documents may be obtained until 60 hours prior to assigned time for opening bids by depositing $100.00 with the Puerto Rico Transportation Authority for each set of documents so obtained. The amount of the deposit will be refunded to each person who returns the plans and documents in good conditions within 10 days after the opening of bids.

However ninety dollars ($90.00) only will be refunded to bona-fide bidders for extra sets returned and those taking sets and not filing formal proposals.

A set of drawings and specifications will be available for inspection only at the Office of Frederick Snare Corporation, Contracting Engineers, 233 Broadway, New York 7, New York.

The Puerto Rico Transportation Authority reserves the right to reject any or all bids and waive any informalities in bidding.

A certified check or bank draft payable to the Puerto Rico Transportation Authority, U. S. Government Bonds, or a satisfactory bid bond executed by the bidder and acceptable sureties in an amount equal to (5%) five per cent of the bid shall be submitted with each bid.

San Juan, Puerto Rico
September 14, 1951

SALVADOR V. CARO
General Manager

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3541) will be received by the Bureau of Reclamation, Denver, Colorado, until October 11, 1951, and then publicly opened for furnishing one 300-ton double-trolley, motor-operated gantry crane, and one lifting beam for Folsom Power Plant, Central Valley Project, California. Delivery is desired within 450 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3543) will be received by the Bureau of Reclamation, Denver, Colorado, until October 11, 1951, and then publicly opened for furnishing 2 butterfly valves, connecting 141-inch diameter penstocks to 135-inch diameter scroll case connecting pipes under a static head of 164.5 feet, for Alcova Power Plant, Kendrick Project, Wyoming. Delivery is desired within 540 days. For particulars address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3542) will be received by the Bureau of Reclamation, Denver, Colorado, until October 11, 1951, and then publicly opened for furnishing 6 vertical traveling water screens for Sacramento Irrigation District, Central Valley Project, California. Delivery is desired within 180 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

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ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

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P-1998, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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Technical college graduate, well-experienced in building construction and installation of equipment; willing to travel to locations in United States. State age, salary expected, experience in detail, and date available to begin to work. Write

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ASSISTANT MILL Metallurgist for large Copper Company, Chile, South America. Young college graduate with some experience, to work in Mill Metallurgical Laboratory. 3-year contract. Transportation both ways and salary while traveling paid by Company. In reply give complete details. P-1991, Engineering News-Record.

BRIDGE AND Highway Engineers: Designers, Draftsmen and Traffic engineers needed. Interesting projects, permanent positions, good pay, no regimentation. Give full details first letter. Frank D. McEnteer, Consulting Engineer, 504 Baltimore Ave., Clarksburg, W. Va.

CONSTRUCTION SUPERINTENDENT experienced in concrete paving, grading, and drainage work. Permanent basis with well established contracting firm. Work centered in deep South. P-1884, Engineering News-Record.

CONTRACTOR'S ENGINEER, Wanted. Experienced in quantity surveying on all types of General Building Construction for General Contractor's Office located in Central Pennsylvania. Civil Engineering graduate preferred but not essential. Advise education, experience and salary expected. P-2003, Engineering News-Record.

DETAILER AND Checker—Experienced in making and checking shop details for steel fabrication plant. All types of steel construction. State experience, references, and rate expected. Savannah Machine and Foundry Company, P. O. Box 590, Savannah, Georgia.

DRAFTSMAN OR Engineer—preferably with civil engineering or building construction experience. Permanent position with excellent opportunity for advancement with contractor doing national business. State age, education, experience and salary expected. P-1851, Engineering News-Record.

ENGINEERS, EXPERIENCED in paving work. Laying water mains and general water and sewage treatment works to act as Resident Engineers. Advise salary requirements and when available, work near capitol district, New York. P-1989, Engineering News-Record.

POSITIONS VACANT

HEATING AND Refrigeration Engineer wanted. Must be capable of handling mechanical layout, design, and supervision of such installation. Locations of offices served are Racine, Wisconsin; Waukegan, Illinois; Lake Forest, Illinois; and Evanston, Illinois. Pay commensurate with ability. The firm is one of the largest plumbing, heating and refrigeration companies between Chicago and Milwaukee, and is expanding its services yearly. Stiles & Horne, Inc., 648 North Western Ave., Lake Forest, Illinois.

SEWER MANAGER. Applications in writing will be received by the Budget Secretary of the New Cumberland Borough Authority, New Cumberland, Pennsylvania for a Manager of the Borough Sewerage System. The duties will include operation of the treatment plant and maintenance and inspection of the sewer system. Please furnish full particulars as to experience, education and salary desired in first letter.

STRUCTURAL ENGINEER: Experienced in steel design industrial and commercial buildings by a leading Middle-West structural steel fabricating company. Excellent opportunity for qualified man. Permanent. P-1939, Engineering News-Record.

WANTED—SUPERINTENDENT or Engineer-in-Charge for municipal utility covering electric power generation and distribution, water supply and distribution and sanitary sewer system. Must have electrical engineer's degree and experience in both electric and water systems. Municipal Commission of Herkimer, New York.

POSITIONS WANTED

ARCHITECTS-ENGINEERS — Owners Field Superintendent considerable experience large industrial and chemical plants, now with well known company on large project, good references. PW-1914, Engineering News-Record.

CONSTR. SUPT. All types heavy Construction. 10 years foreign. Foreign assignment preferred. PW-2028, Engineering News-Record.

(Continued on page 158)

PROJECT MANAGERS
CONSTRUCTION SUPERINTENDENTS

Project Managers capable of supervising design and construction of multi-million dollar industrial projects required for long term opportunities with established nationally known firm.

Must be experienced in complete supervision of such projects as Power Plants, Paper and Pulp Mills, Chemical Plants, Heavy Manufacturing facilities, etc.

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In first letter, give full details concerning experience and education together with availability and salary requirements. All replies confidential.

P-1844, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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P-1783, Engineering News-Record
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Experienced, for work in continental United States. Some travelling necessary. State salary expected, age, experience and date available for work. Write

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A large Midwestern Utility has available a permanent position offering excellent opportunity for development; many employe benefits including liberal pension, sickness benefits, and annual vacation plans; excellent personnel policies. Prefer man 30 to 40 years old with experience in utility, steel mill, or other large scale operations on plant layout, equipment installations, and reinforced concrete and steel structure. Your reply in full detail will be treated confidentially.

P-2000, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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Well Established Consultant's Office, Great Lakes area, has an opening for an experienced man to assume charge of structural steel detailing dept. Twenty-four men. Minimum experience requirements 15 years (for fabricator or similar organization) and estimating ability. Position will eventually lead to associate member of firm to proven man.

P-1969, Engineering News Record
520 N. Michigan Ave., Chicago 11, Ill.

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SANITARY ENGINEER

A large American Company in Venezuela requires an experienced graduate sanitary or Civil Engineer. Must have at least three years' experience in sanitary engineering. Will be required to make inspections and recommendations of sanitation facilities and programs including water supply and treatment, sewerage systems and treatment plants, insect control, slaughter houses, mess halls, etc.
Write giving age, marital status, education, and detailed experience resume.

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SEARCHLIGHT SECTION

POSITIONS WANTED
(Continued from page 156)

BUILDING CONTRACTOR'S Executive, 51, Prof. Engr. N. Y., Indiana, Illinois. Exceptional wide experience, Concrete, Masonry, Industrials, Housings and subaqueous Constructions; Proven Salesman, Estimator, Superintendance. Thoroughly familiar with N.P.A. and Governmental procedures, and contract administrations, will relocate. Chicago phone Briargate 4-6200, Apt. 507, Box PW-1824, Engineering News-Record, 520 N. Michigan Ave., Chicago, Ill.

CIVIL ENGINEER, B.S. Degree, veteran, young, 2 yrs. structural steel design and 2 yrs. construction experience, desires foreign job, preferably in S. America. PW-2005, Engineering News-Record.

CONSTRUCTION ENGINEER-45-20 yrs. experience survey layout construction of sewer and water systems desires position inspector or chief of party. PW-2024, Engineering News-Record.

ELECTRICAL OR Plant Engineer-Wide heavy industrial administrative experience as chief of design, construction, operation, maintenance and plant engineering-Reg. Engr.-Top calibre-Will relocate. PW-1981, Engineering News-Record.

ESTIMATOR GRADUATE Architectural Engineer age 27, two years experience, takeoff, pricing, expediting, commercial and school work, also large housing projects. Now employed. Desires position combining office and field work. PW-1980, Engineering News-Record.

LICENSED SURVEYOR. Twenty years experience preliminary and location-Highways-Railroads-Track design. PW-2006, Engineering News-Record.

MANAGERIAL CAPACITY: Limited travel; $7200 min; Ready-Mix; Conc. Products; Material Production; Construction; Heavy Equipment Sales; Etc. Civil Engineer, 18 years in responsible charge of work. Send for copy of Personnel Record. PW-2023, Engineering News-Record.

MECHANICAL ENGINEER, registered and presently employed, desires responsible position with progressive firm. Extensive education and experience in estimating, design and installation of refrigeration, air conditioning, heating and ventilating systems. Middle West or East location preferred. Salary range $9,000 to $10,000. PW-2019, Engineering News-Record.

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SUPERINTENDENT: 30 Years with contractors, Concrete frame structures, Schools, Hospitals, Industrial, Power, Sewage, Water treatment plants, Steel and Cement mills. PW-1855, Engineering News-Record.

SELLING OPPORTUNITY WANTED

SALES-ENGINEER available for Southern California. Wish to represent Manufacturer of Building or Engineering products. 7 years Design Engineer with top Power Plant and Industrial Engineers; including designing, checking, estimating. 5 years Sales-Engineer, including take-offs, estimating, selling. Willing worker. Excellent references. Edward G. Wolfe, 18 N. Valencia Street, Alhambra, California.

REINFORCED STEEL and Concrete superintendent familiar with construction operations and equipment, also metal lath and ornamental plastering leaving for Capetown, South Africa, January 1, for 3 months, desires represent American interests. RA-2027, Engineering News-Record.

BUSINESS OPPORTUNITY

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Worthington 210 cubic foot, two-stage, air-cooled, on steel wheels with Hercules diesel.
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Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condition.
Paving breakers, jackhammers, wagon drills, tie tampers.

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1½-ton Ford with any body.
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2000-gallon tanks on semi-trailer mounting.
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Lorain 40A shovel attachment complete.
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McCaffrey Model 648 for 1¼ to 2-yd crane.
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1220'—Heltzel 9"x8" forms with stakes.
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B.B. Fine Grader for 21' width, rebuilt.

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Sanderson-Cyclone #42 well drill, new.
Sanderson-Cyclone #44 well drill, new.
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New Layne Bowler type 18 deep well pump.
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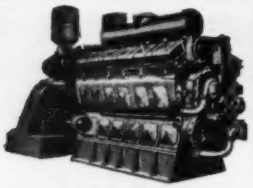

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1250	General Motors	16-278A	1000	720	312	General Motors	8-268A	450	1200
937.5	General Motors	12-567	1080	720	312	Clark	MD-4	375	327
625	Aleo	6-12½x13T	750	600	125	General Motors	3-268A	150	1200
425	Baldwin	VO-6	510	450	75	General Motors	6043C	90	1200
400	Buckeye	80	480	600	62.5	Int'l Harvester	UD-18	76	1200

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1—1M Marion, Combination Shovel, Dragline, ¾ yd. Dipper, 80' Dragline Boom, Fairleads. Two General Motor-diesels. Good condition. New 1947. Serial 8608.

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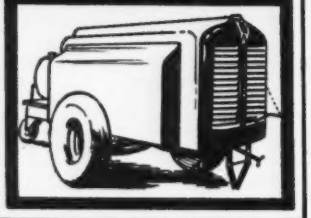

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SEARCHLIGHT SECTION

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Three Wheel 10 Ton Gallon, Buffalo-Springfield and Huber rollers, gas or diesel engine.

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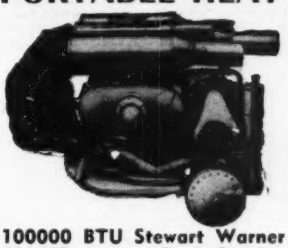

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Two ORTON Model 8 CRANES on Tires
FACTORY REBUILT
One ORTON Model 12 CRANE on Crawler Treads
BRAND NEW
For Immediate Delivery
SHOVEL ATTACHMENTS for above Cranes
Quick Delivery

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Save 8% to 10% on booms fabricated in our plant for any make crane.
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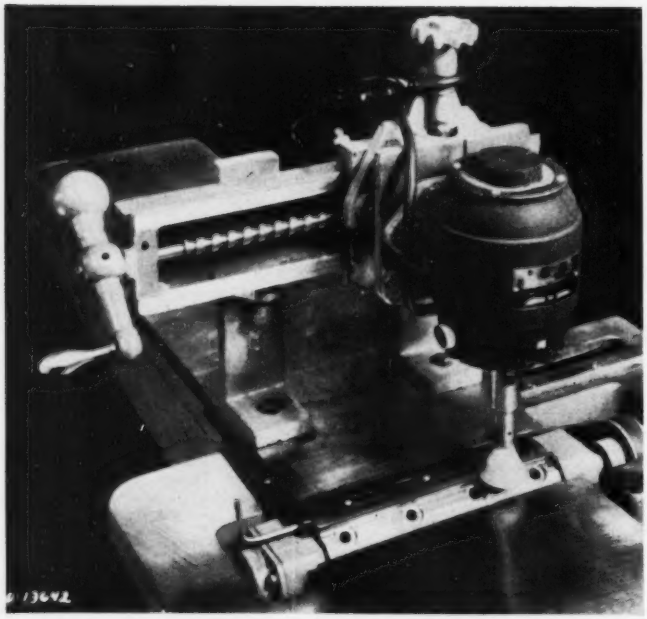
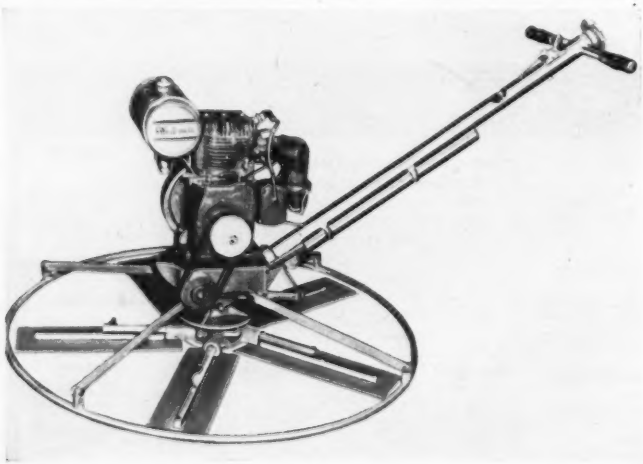


Knife-grinding attachment for jointer

If you've ever had to remove a cutterhead from a jointer to sharpen the knives—or to send them out for sharpening—you'll be interested in this knife-grinding attachment for the Delta 8-in. machine. New model tables are drilled and tapped to receive the attachment directly instead of through clamps. Proper grinding angle is maintained by dropping a pin through the stop bar into the end of the head. A star wheel accurately adjusts the grinding wheel and a ball crank handle guides it evenly across each knife. The precision job which results avoids lengthy production delays on unit manufacturing and finish woodwork. DELTA POWER TOOL DIVISION, ROCKWELL MANUFACTURING COMPANY, 600 EAST VIENNA AVENUE, MILWAUKEE, WISCONSIN

Radial arm mounts an electric handsaw

An electric portable handsaw can be mounted in a matter of seconds to this new retractable radial arm as shown above. Complete with column, portable base and hardwood table, the Comet Radial Arm quickly increases the utility of the saw for mass production jobs such as trimming studs, cutting rafters, etc. It has an ample cutoff movement of 24 in. Bevel range is 0 to 45 and mitre range 45 degrees to right or left. The vertical column adjusts to a height of 9¾ in. All controls are grouped for easy operation and have calibrated settings for all cuts. Positive locking devices prevent creeping or variations between cuts. Special mountings and pressed steel legs extra. CONSOLIDATED MACHINERY & SUPPLY COMPANY, 2031 SANTA FE AVENUE, LOS ANGELES, CALIFORNIA.



5-blade floating and finishing machine

There are five rotating trowels instead of the conventional three on this Model "C" concrete floating and finishing machine, making it possible to move in on a wet slab much sooner. Trowels needs not be changed—merely adjust the pitch of the blades for either operation by means of a new adjustment on the trowel arm.

This trowel pitch, as on other Whiteman rigs, can be changed while the machine is working by merely turning a knob on the end of the shaft. The guard ring permits finishing to within an inch and a half of walls, curbs, columns, etc. Two belts and a double-groove clutch increase

(*Continued on page 169*)

EXTREMES IN WEATHER

VIOLENT IMPACTS

CONSTANT VIBRATION

TOUSEY FINISHES CAN TAKE

SAND and GRAVEL

TRUCK MIXERS, like the one illustrated, are subjected to tremendous abuse — violent impacts with gravel, sand and cement—the constant churning of the mixer mechanism—an almost continuous flow of water. A finish to hold up under these conditions must necessarily be a good one—Tousey has developed such a finish and it is used on several types of heavy duty construction machinery. It combines toughness with flexibility; offering longer wear and better appearance to the equipment on which it is used. ***Write for further information.***

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CHEVROLET

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trowel speed by 25%. WHITEMAN MANUFACTURING COMPANY, 3249 CASITAS AVENUE, LOS ANGELES 39, CALIFORNIA.

Elastic glazing compound stays rubbery

The man intent on his work in the picture above is applying a new multi-purpose glazing compound which the manufacturer says is ideal for wood, steel or aluminum sash. Known as Penco Dual-Glaze, it's designed to be applied just like putty, but it develops a tough pliable skin. This remains elastic and permits normal expansion and contraction with temperature extremes, particularly in metal sash. The only restrictions by the manufacturer are that the sash be absolutely clean and dry, and that the recommended number of clips or points be used. W. S. MCGUFFIE & CO., 3400 THEURER COURT, CLEVELAND 9, OHIO.

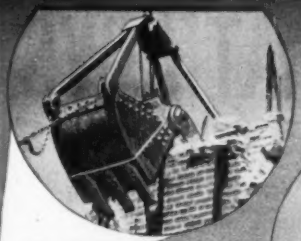
Plastering machine really speeds up job

Using lightweight vermiculite plaster in place of sand in the mix, this E-Z-ON plastering machine pumps the mix from a hopper through a

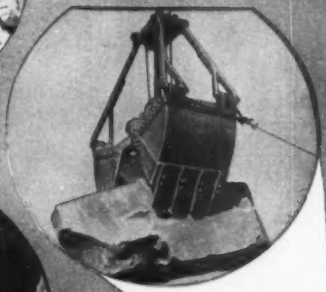
(Continued on next page)

Truly Versatile . . .

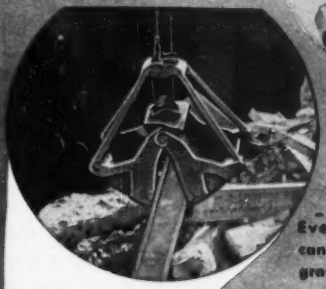
AN OWEN BUCKET



Rapid excavation in all types of soils with "A" Mouthful at Every Bite."



Owens "lend a hand" in tearing down as well as cleaning up on demolition jobs.



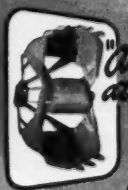
Tremendous closing power is graphically illustrated in this rock handling operation.

Even steel girders cannot escape the firm grasp of an "Owen."

More than just buckets, "Owens" are Versatile Tools, earning their way, every day on jobs of widely varying nature.

Sound principles of design and rugged construction are paying dividends to Owen owners everywhere. Write for the catalog.

Old tires by the dozens are handled with ease by versatile "Owens."



"A mouthful at every bite"

THE OWEN BUCKET CO.

6010 Breakwater Avenue, Cleveland, Ohio

Branches: New York, Philadelphia, Chicago, Berkeley, Calif.

Common sense design assures easy operation
The stuffing box plate, cast integral with the head, combines with the packing and bronze stuffing box nut to seal off the operating thread. Nothing—water, sediment or ice—can reach the thread to damage it or hinder its operation. Winter or summer, the Mathews Modernized Hydrant is dependable—an important factor in neighborhood safety.
MATHEWS
HYDRANTS
Made by R. D. Wood Company
Public Ledger Building, Independence Square
Philadelphia 5, Pa.
Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

Mathews Modernized Hydrants offer these advantages:

Compression-type valve prevents flooding • Head turns 360° • Replaceable head • Nozzle sections easily changed • Nozzle levels easily raised or lowered without excavating • Protection case of "Sand-Spun" cast iron for strength, toughness, elasticity • Operating thread only part to be lubricated • All working parts contained in barrel—removable without excavating • A modern barrel makes an old Mathews good as new • Available with mechanical joint pipe connections

Storage building at Fairless Works, Morrisville, Pa. 25,000 sq. ft., built by Howard.
FOR A LOW BID, PROMPT DELIVERY, AND EFFICIENT ERECTION OF STEEL BUILDINGS,
CONTACT
HOWARD STEEL COMPANY
1014 S. DITTMER ST., DAVENPORT, IOWA
Office building at Fairless Works, Morrisville, Pa. 25,000 sq. ft., built by Howard.

New products . . .

rubber hose to a spray nozzle. At this point compressed air sprays the plaster uniformly on walls or ceilings with a nozzle switch determining stop and start of flow. It can pump as far as 80 feet from the hopper, and in several instances two plasterers have been able to set the rig up in the basement of a two-story house, pass the hose up through holes purposely left in the floor, and "brown out" two houses in one day. The picture above was taken at the height of plastering operations for the new $4,000,000 176-unit Wilshire Manor apartment building in Los Angeles where plaster was put on in record time. There it handled vermiculite plaster aggregate over 2-in. solid gypsum lath partitions; direct application (to half the ceiling area) of acoustical plastic and to the remaining areas a mixture of 200 lb of gypsum hard wall and two cubic feet of Zonolite finish aggregate. Info available from ZONOLITE COMPANY, 135 SOUTH LA SALLE STREET, CHICAGO 3, ILLINOIS.

Fire extinguisher

Chief characteristics of the REDI-GRIP pressurized portable fire extinguisher is its positive, one-hand operation. Inspected and approved by Underwriters Laboratories Inc., it's available in 1-, 2½- and 4-quart sizes with carbon tetrachloride, CBM (chlorobromomethane), individually or in combination. Expellent may be either air or carbon dioxide. Its range exceeds 30 ft and discharge time for the 1-qt size is about 27 seconds at normal temperature. One of several made by STOP-FIRE INC., 125 ASHLAND PLACE, BROOKLYN 1, NEW YORK.

VICKERS multiple unit valves for the best hydraulic control of mobile equipment

NEW!

Vickers Multiple Unit Valves provide every desirable feature of custom design at production-line prices. Vickers sectionalized construction permits you to specify the exact control functions needed and no others; yet you pay no special design or production costs.

To meet various control needs (original specification or conversion) and to make many combinations without unwieldy inventory . . . use the Vickers sectionalized valve assembly.

To control motion positively and accurately . . . you get Vickers exclusive load inching control (also makes it nearly impossible to jar or dump a load unintentionally).

To obtain any type and size of valve unit . . . Vickers provides 11 types of valve sections in four pipe sizes.

To hold load position while operating other machine components or while pump drive is stopped . . . Vickers has the back flow prevention check valve.

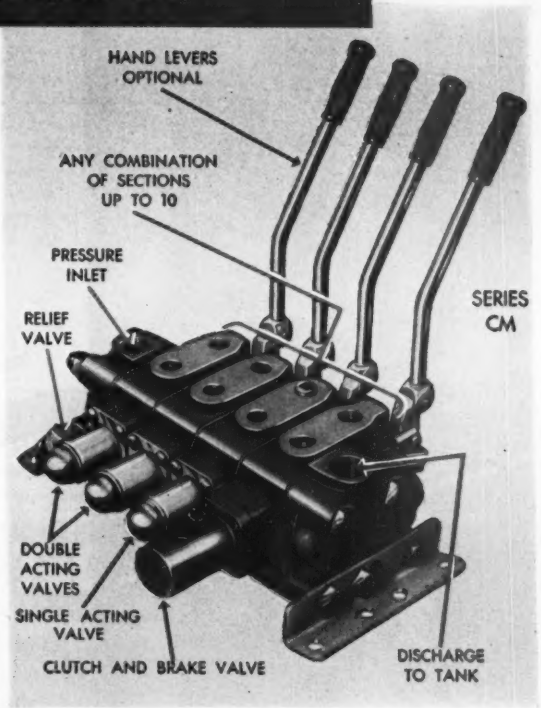
To prevent overload and damage to machinery . . . the assembly includes a Vickers positive-acting factory preset relief valve.

To assure a leak-proof, drip-proof system . . . Vickers nested "O" ring seals between valve sections and on valve plungers.

To make valve operation complete . . . Vickers furnishes spring loaded valve plungers (rugged operating levers optional).

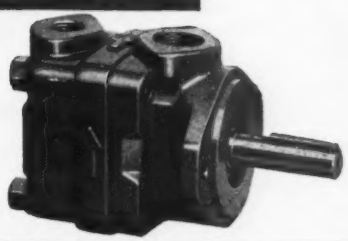
To get full capacity for piping or tubing size . . . Vickers rates valves conservatively at 18 gpm for the ½" size up to 48 gpm for 1".

To obtain the utmost in performance and dependability . . . use a 100% Vickers hydraulic system including Vickers Vane Type Pumps. (See below.)



VICKERS balanced vane pumps for mobile equipment

These pumps are tough and long-wearing. Hydraulically balanced construction eliminates pressure-induced bearing loads. Automatic wear compensation maintains correct radial and axial running clearances throughout pump life . . . efficiency and delivery rate remains high. Series V-200, V-300 and V-400 range in capacity from 2 to 73 gpm. Operating pressures up to 1500 psi. Available also as double pump. Get full details from the Vickers Application office near you, or write for Catalog M-5100.



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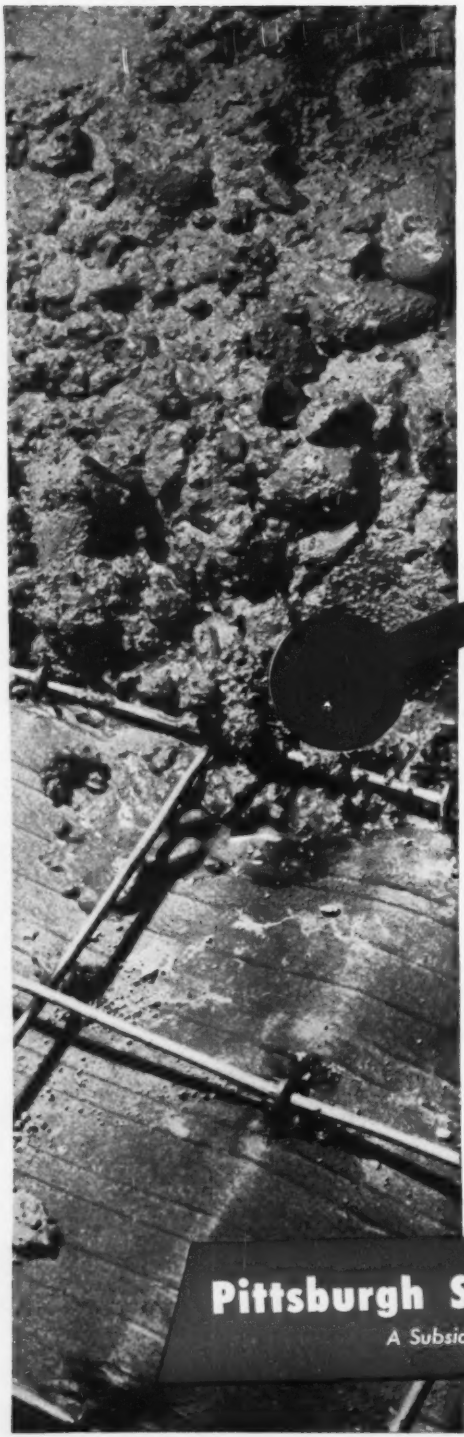
ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921



Look how the strong welded mesh of

Pittsburgh Steeltex Floor Lath

assumes its proper position in a concrete slab

You can readily see why a slab poured over Pittsburgh Steeltex Floor Lath means a better, stronger floor. It is properly reinforced with embedded galvanized welded wire mesh and properly cured because moisture is retained by tough waterproof backing. Furthermore, construction costs can be cut since work may continue on the floor below while pouring is in progress. For further good reasons to specify Steeltex, see Sweet's or write for our catalog D.S. 133, Dept. ER, Pittsburgh Steel Products Co., Grant Bldg., Pittsburgh 30, Pa.

Pittsburgh Steel Products Company

A Subsidiary of Pittsburgh Steel Company

MANUFACTURERS' PUBLICATIONS

Mechanical foam for fires—If you're handling or storing alcohol, ether, acetone, petroleum, or other polar solvents, you'll be interested in the new liquid type mechanical foam that's applicable with present devices. It also offers dependable protection when applied to methyl, ethyl isopropyl alcohols, esters, ketones etc. NATIONAL FOAM SYSTEM INC., WEST CHESTER, PENNSYLVANIA.

Prestressed concrete bridges—is the title of an interesting booklet describing the Freyssinet methods of pretensioning and post-tensioning. Actual installation photos and completed structures are shown and described along with a table giving quantities of materials for three different types of bridges. FREYSSINET COMPANY INC., 57 WILLIAM STREET, NEW YORK 5, NEW YORK.

Tricks of scaffolding—Short cuts, kinks and tricks of unusual scaffolding applications is now available. Some of these tricks include: Racking down from a 5-ft. panel to a 40-in. width for narrow spots; shortening up a 7-ft. span to 5 ft. 5 in; circling around stacks; tying around corners and recesses; angling scaffolding either outside or inside curved walls, etc. Write for Bulletin No. 130 which describes this Ezebilt steel-panel scaffolding. UNIVERSAL MANUFACTURING CORPORATION, ZELIENOPLE, PENNSYLVANIA.

Revolver cranes—This is a pictorial catalog, a 20-pager, with views of huge American Revolver cranes working at ports, construction sites and industrial plants throughout the world. It shows many specialized applications, short job stories, and rated lifting capacities of the five standard models. If you have a large-scale materials-handling problem now, or one coming up, don't forget to include this in your data file. It's the company's catalog 400-R-3, obtainable from AMERICAN HOIST & DERRICK COMPANY, 63 SOUTH ROBERT STREET, ST. PAUL 1, MINNESOTA.

Taps and reamers—Two catalogs that are inseparable, one a 16-pager and the other 12 pages long, describe DoAll taps and DoAll reamers. The first includes illustrations and specifications on Hand, Machine Screw, Nut, Pulley, Pipe, Tapper, Hook and Spe-

(Continued on page 176)

Hendrick Open Steel Flooring . . .

gives you these outstanding advantages—

90% open area for light and ventilation . . . rectangular, square-edge steel bars that provide a safe, non-slipping, level walking surface . . . pressure-formed Mitco construction that obviates weaknesses of bolts, rivets and angle irons . . . no welds, with liability of residual stresses that lead to warping . . . ample strength to support heavy loads without any lateral deflection of flooring. Write for Hendrick Mitco Products Catalogue.

SEE OUR CATALOG IN SWEET'S

1876—Seventy-Fifth Anniversary—1951

HENDRICK

Manufacturing Company

45 DUNDAFF STREET, CARBONDALE, PENNA.

Sales Offices In Principal Cities

Perforated Metals
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Wedge-Slot Screens
Architectural Grilles
Mitco Open Steel Flooring,
Shur-Site Treads, Armorgrids

TAC does what no other tool can do!

AT LAST! AN OPEN-END RATCHET WRENCH — the world's first true *universal* wrench. A patented design for connections on tubing, rods, piping, conduit, studs, etc. Sixty-four socket sizes from 3/8" to 4". Smallest effective ratcheting arc yet—5° to 7½°. TAC will also do every job any ordinary ratchet wrench will do: one TAC set replaces literally dozens of single-purpose hand tools.

makers of advanced tools for industry

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TAC is the registered trademark of

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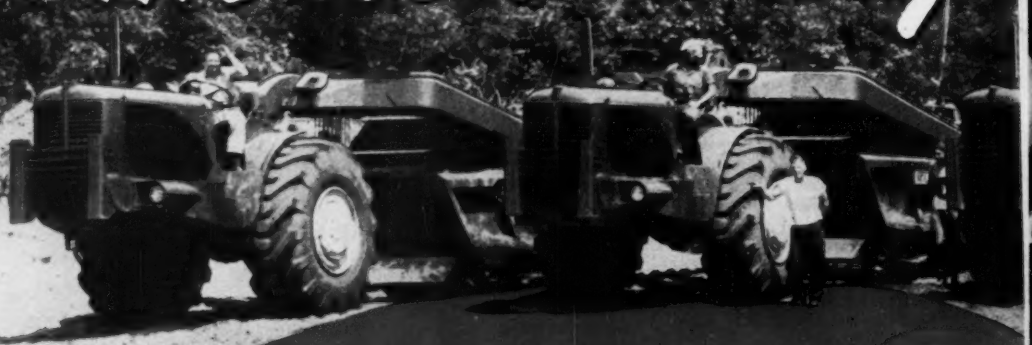
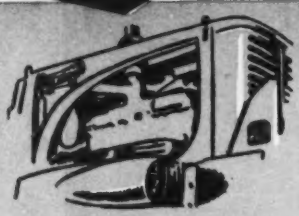
On the New Jersey



Heiliners keep schedules highballing . .

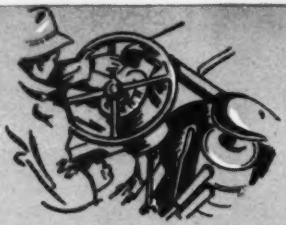
Shovel-loading a Heilliner bottom-dump unit on the New Jersey Turnpike. Capacity — 20 cu. yds. High clearance, sharp turning-radius, and easy steering keep costs down.

A few of the reasons your Heiliner operators move more dirt at less cost



200-HP Cummins Diesel

High top speed (25 m.p.h.), plenty of lugging power. Compression release for quick starts.



Easy-handling Hydro-Steer

Makes steering effortless. You can turn the Heiliner with one hand in a 22-foot radius.

Comfortable Seat

Reduces operator fatigue, by absorbing the shocks in rough going.

Fleet of Heiliner 2C-800 Scrapers on the New Jersey Turnpike. Capacity of each — 18 cu. yds.

move more dirt, faster, at less cost!

On the 118-mile New Jersey Turnpike, soil conditions vary from heavy sand-clay through sandy marsh-land to clear sand. In tough going like this, Heiliners out-perform competitive units every time.

They carry 60% of the load on the drive wheels. This gives them exceptional traction — and that's why *they move more dirt faster, at less cost.*

Here's the proof (based on New Jersey Turnpike time studies): Heiliner scrapers, with their bonus-loading design, pick up heaped loads in an average of 55 seconds . . . complete 5000 ft. round-trips from borrow to fill in 5½ minutes . . . and maintain their own haul-roads at the same time. Brother, that's highballing!

2C-800 Heiliners are available with either an 18-cu. yd. scraper or a 20-cu. yd. bottom-dump wagon (both are interchangeable). Heiliner scrapers and bottom-dump wagons are both used on the New Jersey Turnpike to meet schedules and avoid penalties. Have your Heil road-machinery distributor show you why Heiliners move more dirt faster, at less cost!

50th Anniversary

THE HEIL CO.

Dept. 191, 3001 West Montana Avenue, Milwaukee 1, Wisconsin
Factories: Milwaukee — Hillside, N. J.

District Offices: Hillside, Washington, D. C., Atlanta, Milwaukee, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Los Angeles, Seattle

B-119

Mail this coupon today for NEW Catalog — just off the press!

THE HEIL CO.
Dept. 191, 3001 W. Montana Ave.
Milwaukee 1, Wisconsin

I am interested in moving more dirt faster, at less cost. Please send me new catalog showing cost-cutting advantages of Heiliner design.

Name_____ Title_____

Company_____

Company Address_____

City_____ (__) State_____

Important News on Reinforcing Bars

Applicants for construction work must now file for Reinforcing Bar Allotments

The National Production Authority (NPA) has announced that Reinforcing Bars will be changed to a class "A" product, effective October 1, 1951.

Here's what this means to you . . .

★ Previously, when Reinforcing Bars were classified as a "B" product, fabricators were required by the NPA to file CMP-4B applications in order to obtain allotments and production schedules to meet their customers' requirements.

★ Now, *fabricators will no longer be required to file for allotments.*

★ THE RESPONSIBILITY FOR FILING NOW RESTS WITH THE APPLICANT FOR THE CONSTRUCTION WORK. (The applicant may be the owner, architect, engineer, contractor or any duly authorized representative.)

★ You will need to file CMP-4C applications with your claimant agency covering your requirements of Reinforcing Bars for all quarters required to complete the construction. After receiving your allotment you, in turn, will make allotment to your fabricator in sufficient quantities for each advanced quarter to meet the requirements of your job. He will then place your order with the mill.

WE URGE YOU TO ACT NOW. File your CMP-4C application immediately so that we can help you obtain your allotment of this vital product.

UNITED STATES STEEL SUPPLY COMPANY

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UNITED STATES STEEL

Manufacturers Publications . . .

cial taps, along with 9 pages of technical data and suggestions for ordering these taps which will help in handling orders at the factory. The second has excellent illustrations at the top of each page followed by detailed listings giving technical data and prices on chucking, expansion, shell, taper pin and stub screw machine reamers. Something new has been added—die-makers' reamers with taper of .006 per inch, letter and number size reamers, decimal size chucking reamers; also taper, dowel pin, fractional, letter and number size reamers in selected sets.

The tap catalog is number 51-813; the reamer catalog number 51-814. THE DOALL COMPANY, 254 NORTH LAUREL AVENUE, DES PLAINES, ILLINOIS.

Steel storage bins—and loading bins are covered in a new pamphlet, along with information on their sizes, specifications and applications. Knife, rotary and sliding type bin gates are described and compared to help readers make the proper choice for a particular job. PIONEER ENGINEERING WORKS, 1515 CENTRAL AVENUE, MINNEAPOLIS 13, MINNESOTA.

Belt conveyor idlers and machinery—This 42-page booklet contains information on all the latest designs and developments of belt conveyor idlers, trippers, seals etc. Two pages contain general engineering information helpful in determining, designing and specifying belt idler equipment. One section deals exclusively with the Rex self-aligning return belt training idler together with material in the new steep-angle troughed belt idlers. Still another section describes zipper bunker seals and information on correct maintenance procedure. CHAIN BELT COMPANY, DEPT PR, 1600 WEST BRUCE STREET, MILWAUKEE 4, WISCONSIN.

Safety devices for steam and hot water boilers—This catalog supplements the company's current Condensed Catalog by including many interesting facts on the new liquid level controls for special applications, float controls and related devices. Invaluable in solving special boiler water level control, liquid level control and relief valve problems. Other items covered: boiler water feeders, low water cutoffs, float-operated switches, float valves, solvent still regulators, electrical and flow switches. MCDONNELL & MILLER INC., 3500 NORTH SPAULDING AVENUE, CHICAGO 18, ILLINOIS.

GM DIESEL powers world's most compact 600 cfm Compressor

CONSTRUCTION—"Starts like a charm, even on the coldest morning. No time wasted in getting up to pressure. Runs a heavy pile driver with ease. We can set it out of the way with a crane and move it back to the roadway for towing in no time."

QUARRYING AND MINING—"We couldn't imagine 600 feet coming from such a slick little compressor until we saw the increased drill footage, and the ease with which it took over two FM-2 wagon drills. Good fuel economy, too."

HIGHWAY BUILDING—"Plenty of reserve—full capacity at 6,730 feet altitude. We're operating eight 55-lb. blower drills putting in 20-ft. holes on cliffsides. So easy to maneuver and work with that it's a natural for tough jobs like this."

WINNING acclaim as the world's smallest, lightest, big-capacity portable compressor, the new Ingersoll-Rand Gyro-Flow 600 is powered by a 6-cylinder General Motors Series 71 Diesel engine.

This compact, high-powered portable delivers a full 600 cubic feet of air per minute at a steady 100-lb. pressure, yet it weighs only 9,500 pounds. It is 20 to 40% lighter—and as much as 20% smaller—than other portables of comparable capacity.

Being 2-cycle, GM Diesel engines pack more power in less space. They start quickly on their own fuel, run smoothly and enable equipment to maintain rated performance at high altitudes. They're designed for ease of maintenance—no high-pressure fuel tubing—unit injectors that can be changed in a matter of minutes. And, when needed, low-cost "Factory-Engineered" parts are readily obtainable.

These modern 2-cycle Diesels are bringing new economy and efficiency to more than 500 different kinds of power equipment built by 120 manufacturers. Ask your GM Diesel distributor or write us for full details.

ANSWER THE CALL CIVIL DEFENSE

DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES...Up to 275 H.P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS...Up to 800 H.P.

GENERAL MOTORS

GM GENERAL MOTORS DIESEL POWER

DIESEL BRAWN WITHOUT THE BULK

300,000 YARDS

maintenance still too low to be figured

Two of the eight Worthington Blue Brute Wagon Drills that broke cost records for Rock Construction Corporation. Note the amount of line drilling.

President Walt Dunham and Engineer A. Bruce Lattanzi in the company's Downsville Dam office.

Two 500 Worthington Blue Brute Air Compressors supplying air for drills at the Downsville Dam.

Line drilling in blue stone is child's play to those Worthington Blue Brute Wagon Drills.

Rock Construction Corporation of Kingston, New York, working on the Downsville Dam weir and waste channel, got service out of eight wagon drills that constantly amazed them.

Walt Dunham, president, reported: "We have drilled as much as 700-800 feet per 8-hour day per machine. In 165 working days, the machines put out 300,000 cu yds with so little maintenance it can't be figured in cost per yard."

This job also used a number of Worthington Blue Brute Hand-Held Rock Drills. Says Mr. Dunham: "There has been absolutely no maintenance cost. Our operators like them better than anything they have ever used."

Worthington Blue Brute Rock Drill operating ahead of the wagons collaring hole for laying out line drilling.

Contractors everywhere know that a Worthington Blue Brute team—air compressor and tools—makes mincemeat out of even the toughest jobs. See your nearby Worthington distributor for a demonstration. Worthington Pump and Machinery Corporation, Construction Equipment Division, Dunellen, N. J.

WORTHINGTON

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IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

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ENGINEERING NEWS-RECORD

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Texas firm likes great open spaces

When Corn Products Refining Co. started operations at its Bluebonnet Plant, Corpus Christi, Texas, two years ago (ENR Nov. 24, 1949, p. 42) the plant attracted wide attention.

Nearly all processing buildings had no walls.

Engineers and builders of the plant alike enjoy the clear air and warm climate of the region. They decided to make the most of it.

They carefully worked out a basic design which eliminated walls from all buildings unless process requirements made walls necessary. The result is a group of buildings, some totally lacking walls and others partially enclosed to take care of specific operations that need closer control of room conditions.

• **Took precautions**—The engineers and builders were optimistic, but they took care to design the building so that walls could be put in should operating experience prove they were needed for efficient production.

They took this precaution because the kind of plant they planned had never before been operated in unenclosed buildings.

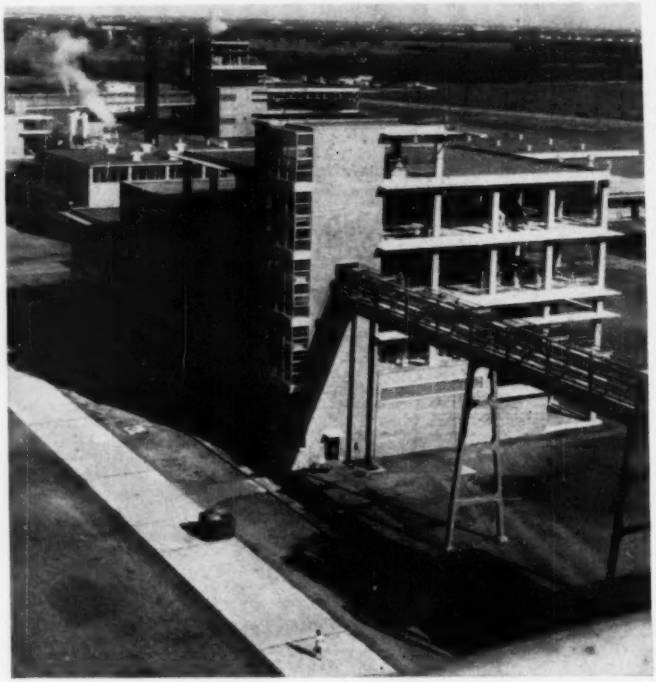
Corn Products Refining Co. has now been operating in its open-air buildings for two years. During this time it has added walls to one of the ten buildings originally built without them. (ENR May 11, 1950, p. 17 and June 29, 1950, p. 45.)

The newly closed-in building is known as the Sugar House. Walls were added to give better temperature control during the crystallization period. These are the only walls that have been added to date.

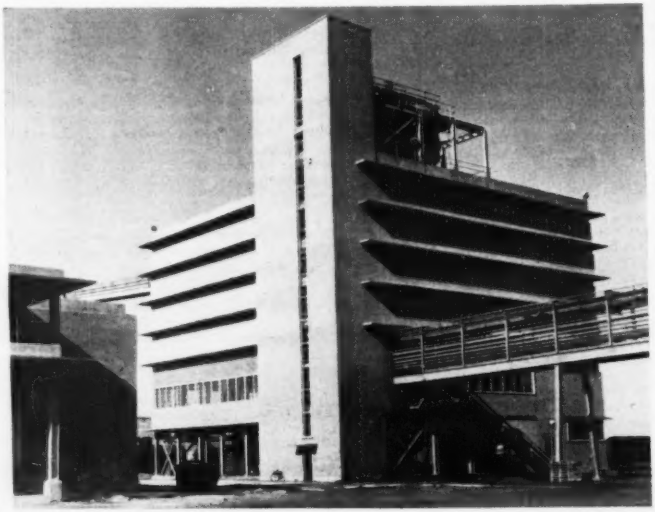
• **Study being made**—One small modification is being considered these days by Corn Products' Engineering Dept. Its engineers are studying the possible need for shutter or jalousie-type windbreakers on some sections on north elevations of three buildings.

Purpose of these modifications would be to protect plant operating personnel from weather during the short winter season. This eventuality also had been considered in the original design of the plant.

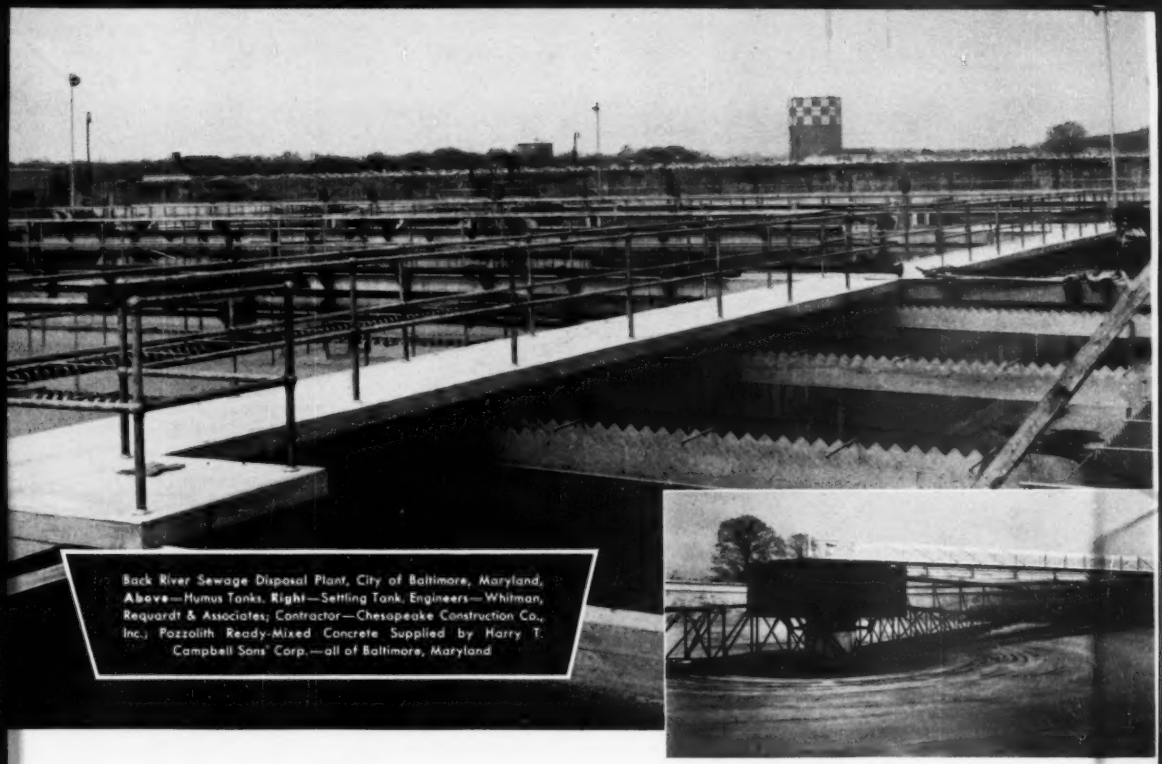
Meanwhile Corn Products Refining Co.'s plant continues manufacturing dextrose, starch and high protein livestock feed from milo maise (a type of sorghum prevalent in the Southwest) in a plant that bears the distinction of having more "exposure" than any other of its type.



WALL-LESS BUILDINGS—Two years of operating experience has shown the Corn Products Refining Co. that its wall-less buildings are a success. Open type construction takes advantage of warm sunny weather at Corpus Christi, Texas.



ONE WALLED IN—Of ten buildings without walls, only one at the plant has been walled in. Operating experience showed that the sugar house needed more closely controlled atmospheric conditions. Original design by the H. K. Ferguson Co. had anticipated this possibility and provided for the addition.



Back River Sewage Disposal Plant, City of Baltimore, Maryland. Above—Humus Tanks. Right—Settling Tank. Engineers—Whitman, Requardt & Associates; Contractor—Chesapeake Construction Co., Inc.; Pozzolith Ready-Mixed Concrete Supplied by Harry T. Campbell Sons' Corp.—all of Baltimore, Maryland

OTHER MASTER BUILDERS PRODUCTS IN WHICH CEMENT DISPERSION IS EMPLOYED

EMBECO...
For non-shrink grouting and re-integration.

MASTERPLATE...
Industry's long life floor. Non-colored and 11 colors.

MASTERTEX...
Cement-base paint of low permeability for protecting and decorating exterior and interior surfaces of concrete and masonry.

OMICRON MORTARPROOFING..
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Improved concrete properties obtained with Pozzolith resulted in important advantages during the construction of this $2,000,000 sewage works project... will provide equally important advantages throughout the life of the plant.

Ideal workability with reduced water and good cohesiveness provided easy placeability for thin wall sections, low shrinkage and no segregation.

Other immediate benefits obtained with Pozzolith were designed strength, high bond of concrete to steel and low permeability.

Pozzolith Concrete's resistance to corrosion and exceptional resistance to freezing and thawing will provide the long term benefits of added years of service and low maintenance expense.

Pozzolith provides these benefits — *at lower cost than by any other means* — because it disperses cement, reduces water and entrains the *optimum* amount of air.

Full information on request.

Over 600 Leading Ready-Mix Plants Are Producing Pozzolith Ready-Mixed Concrete

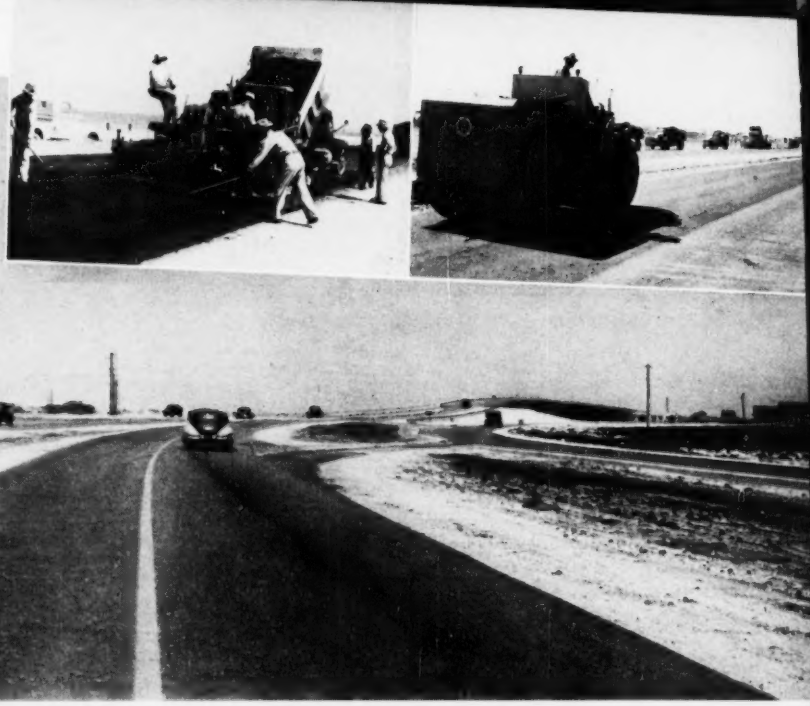
the MASTER BUILDERS Co.

CLEVELAND 3, OHIO — Subsidiary of American-Marietta Company — TORONTO, ONTARIO

Asphalt paving

with low-cost local aggregate

Approaches to new Nueces Bay Causeway near Corpus Christi, Texas, were paved with hot mix Texaco Asphalt construction, using dredged sand-shell as aggregate in the mix. Heldenfels Brothers of Corpus Christi were the contractors.



The success with which low-cost local aggregates and Texaco Asphalt products are used to construct durable paving at moderate cost is important to the road builder. By enabling him to make effective use of such aggregate, Texaco Asphalt helps secure the maximum mileage of improved roads with available highway funds.

For example, in constructing five miles of Texaco Asphalt paving on approaches to the new Nueces Bay Causeway near Corpus Christi, the Texas State Highway Department this year used dredged sand-shell as aggregate. A 90-penetration asphalt cement and sand-shell were plant-mixed and laid to a thickness of 1-inch on some sections of the approaches and 4 inches on others. Sand-shell also was employed as the foundation under the asphalt wearing surface.

Road builders from the Atlantic to the Rockies have paved successfully with Texaco Asphalt and a wide range of aggregates for more than 45 years. Refined from selected crudes to meet the most exacting specifications, these asphaltic materials have delivered consistently satisfactory service with low upkeep under widely diversified traffic and climatic conditions.

Two helpful booklets covering all types of Texaco Asphalt construction can be obtained without cost or obligation by writing our nearest office.

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